

STATE OF MISSOURI
DEPARTMENT OF NATURAL RESOURCES

MISSOURI CLEAN WATER COMMISSION



MISSOURI STATE OPERATING PERMIT

In compliance with the Missouri Clean Water Law, (Chapter 644 R.S. Mo. as amended, hereinafter, the Law), and the Federal Water Pollution Control Act (Public Law 92-500, 92nd Congress) as amended,

Permit No. MO-0097926

Owner: Engineered Coil Company
Address: 6060 Highway PP, High Ridge, MO 63049

Continuing Authority: Same as above
Address: Same as above

Facility Name: Engineered Coil Company dba DRS Marlo Coil
Facility Address: 6060 Highway PP, High Ridge, MO 63049

Legal Description: See Page 2
Latitude/Longitude: See Page 2

Receiving Stream: Antire Creek (U) (Losing)
First Classified Stream and ID: Antire Creek (P) (02188)
USGS Basin & Sub-watershed No.: (07140102-080001)

is authorized to discharge from the facility described herein, in accordance with the effluent limitations and monitoring requirements as set forth herein:

FACILITY DESCRIPTION

Outfalls - See Page 2

This permit authorizes only wastewater discharges under the Missouri Clean Water Law and the National Pollutant Discharge Elimination System; it does not apply to other regulated areas. This permit may be appealed in accordance with Section 644.051.6 of the Law.

July 15, 2011
Effective Date


Sara Parker Pauley, Director, Department of Natural Resources

July 14, 2016
Expiration Date


Mike Struckhoff, Director, St. Louis Regional Office

FACILITY DESCRIPTION (continued)

Outfalls #002, #005, #006, #007, #008 and instream monitoring locations DS #1 and DS #2 have been terminated and are no longer covered by this permit. All Stormwater discharges from the site covered by the Special Conditions 7 (Stormwater Pollution Prevention Plan) and 8 (Best Management Practices) on Page 9 of this permit.

Outfall #001 – Domestic - SIC #3585 - **Certified “C” Operator Required**

Extended aeration/sock filters/chlorination/aerated sludge holding tanks/sludge is disposed by contract hauler

Legal Description: SE ¼, NE ¼, NE ¼, Sec. 22, T43N, R4E, Jefferson County

UTM: X = 713630, Y = 4259124

Design population equivalent is 59

Design flow is 3,000 gallons per day.

Actual flow is 2,400 gallons per day.

Design sludge production is 1.06 dry tons/year.

Outfall #003 - Industrial – SIC #3585

Non-contact cooling water

Legal Description: NW ¼, NW ¼, Sec. 23 T43N, R4E, Jefferson County

UTM: X = 713947, Y = 4259253

Design flow is 11,000 gallons per day.

Outfall #004 - Industrial – SIC #3585

Vehicle and equipment washing, flushing coils.

Legal Description: NW ¼, NW ¼, Sec. 23, T43N, R4E, Jefferson County

UTM: X = 713835, Y = 4259191

Design flow is 3,000 gallons per day.

A. INTERIM EFFLUENT LIMITATIONS AND MONITORING REQUIREMENTS					PAGE NUMBER 3 of 13	
PERMIT NUMBER MO-0097926						
The permittee is authorized to discharge from outfall(s) with serial number(s) as specified in the application for this permit. The Interim effluent limitations shall become effective upon issuance of the permit and remain in effect until December 31, 2013 . Such discharges shall be controlled, limited and monitored by the permittee as specified below:						
OUTFALL NUMBER AND EFFLUENT PARAMETER(S)	UNITS	INTERIM EFFLUENT LIMITATIONS			MONITORING REQUIREMENTS	
		DAILY MAXIMUM	WEEKLY AVERAGE	MONTHLY AVERAGE	MEASUREMENT FREQUENCY	SAMPLE TYPE
<u>Outfall #001</u>						
Flow	MGD	*		*	Once/month	24 hr est.
Biochemical Oxygen Demand ₅	mg/L		15	10	Once/ quarter**	Grab
Total Suspended Solids	mg/L		20	15	Once/ quarter**	Grab
pH – Units	SU	***		***	Once/ quarter**	Grab
Oil & Grease	mg/L	15		10	Once/ quarter**	Grab
<i>E. coli</i> (Note 1)	#/100 ml	126		126	Once/ quarter**	Grab
Total Residual Chlorine (Note 2)	mg/L	1.0		1.0	Once/ quarter**	Grab
Ammonia as N	mg/L				Once/quarter**	Grab
(May 1 – Oct 31)		*		*		
(Nov 1 – April 30)		*		*		
Nitrate + Nitrite	mg/L	*		*	Once/quarter**	Grab

MONITORING REPORTS SHALL BE SUBMITTED **QUARTERLY**; THE FIRST REPORT IS DUE **OCTOBER 28, 2011**. THERE SHALL BE NO DISCHARGE OF FLOATING SOLIDS OR VISIBLE FOAM IN OTHER THAN TRACE AMOUNTS.

MO 780-0010 (8/91)

* Monitoring requirement only.

** Sample once per quarter

Sample discharge at least once for the months of:	Report is due:
January, February, March (1st Quarter)	April 28
April, May, June (2nd Quarter)	July 28
July, August, September (3rd Quarter)	October 28
October, November, December (4th Quarter)	January 28

*** pH is measured in pH units and is not to be averaged. The pH is limited to the range of 6.5-9.0 pH units.

Note 1 – Final effluent limits of 126 cfu per 100 ml daily maximum and monthly average applicable year round due to losing stream designation.

Note 2 - Disinfection is required year-round unless the permit specifically states that “Final limitations and monitoring requirements for *E. coli* are applicable only during the recreational season from April 1 through October 31.” If your permit does not require disinfection during the non-recreational months, do not chlorinate in those months. Do not chemically dechlorinate **if it is not needed to meet the limits in your permit**. If no chlorine was used in a given sampling period, an actual analysis is not necessary. Simply report as “0 mg/L” TRC.

A. INTERIM EFFLUENT LIMITATIONS AND MONITORING REQUIREMENTS					PAGE NUMBER 4 of 13	
PERMIT NUMBER MO-0097926						
The permittee is authorized to discharge from outfall(s) with serial number(s) as specified in the application for this permit. The Interim effluent limitations shall become effective upon issuance of the permit and remain in effect until December 31, 2013 . Such discharges shall be controlled, limited and monitored by the permittee as specified below:						
OUTFALL NUMBER AND EFFLUENT PARAMETER(S)	UNITS	INTERIM EFFLUENT LIMITATIONS			MONITORING REQUIREMENTS****	
		DAILY MAXIMUM	WEEKLY AVERAGE	MONTHLY AVERAGE	MEASUREMENT FREQUENCY	SAMPLE TYPE
<u>Outfall #004</u>						
Flow	MGD	*		*	Once/month	24 hr est.
Chemical Oxygen Demand	mg/L	*		*	Once/ quarter**	Grab
Total Suspended Solids	mg/L	60		31	Once/ quarter**	Grab
pH - Units	SU	***		***	Once/ quarter**	Grab
Temperature	°F	95		*	Once/ quarter**	Grab
Ammonia as N	mg/L	*		*	Once/ quarter**	Grab
Phosphorous, Total	mg/L	*		*	Once/ quarter**	Grab
Oil & Grease	mg/L	15		10	Once/ quarter**	Grab
Aluminum, Total Recoverable	µg/L	*		*	Once/quarter**	Grab
Boron, Total Recoverable	µg/L	*		*	Once/quarter**	Grab
Chromium (VI), Dissolved	µg/L	*		*	Once/quarter**	Grab
Copper, Total Recoverable	µg/L	*		*	Once/quarter**	Grab
Iron, Total Recoverable	µg/L	*		*	Once/quarter**	Grab
Zinc, Total Recoverable	µg/L	*		*	Once/quarter**	Grab
Lead, Total Recoverable	µg/L	*		*	Once/quarter**	Grab
Nickel, Total Recoverable	µg/L	*		*	Once/quarter**	Grab
Silver, Total Recoverable	µg/L	*		*	Once/quarter**	Grab
MONITORING REPORTS SHALL BE SUBMITTED <u>QUARTERLY</u> ; THE FIRST REPORT IS DUE <u>OCTOBER 28, 2011</u> . THERE SHALL BE NO DISCHARGE OF FLOATING SOLIDS OR VISIBLE FOAM IN OTHER THAN TRACE AMOUNTS.						

MO 780-0010 (8/91)

* Monitoring requirement only.

** Sample once per quarter:

*** pH is measured in pH units and is not to be averaged. The pH is limited to the range of 6.5-9.0 pH units.

**** This outfall will discharge stormwater during precipitation events, however representative samples for the purpose of this permit for this outfall should only contain process water, and not stormwater.

B. FINAL EFFLUENT LIMITATIONS AND MONITORING REQUIREMENTS					PAGE NUMBER 5 of 13	
PERMIT NUMBER MO-0097926						
The permittee is authorized to discharge from outfall(s) with serial number(s) as specified in the application for this permit. The final effluent limitations shall become effective on January 1, 2014 and remain in effect until expiration of the permit. Such discharges shall be controlled, limited and monitored by the permittee as specified below:						
OUTFALL NUMBER AND EFFLUENT PARAMETER(S)	UNITS	FINAL EFFLUENT LIMITATIONS			MONITORING REQUIREMENTS	
		DAILY MAXIMUM	WEEKLY AVERAGE	MONTHLY AVERAGE	MEASUREMENT FREQUENCY	SAMPLE TYPE
<u>Outfall #001</u>						
Flow	MGD	*		*	Once/month	24 hr total
Biochemical Oxygen Demand ₅	mg/L		15	10	Once/quarter**	24 hr composite
Total Suspended Solids	mg/L		20	15	Once/quarter**	24 hr composite
pH – Units	SU	***		***	Once/quarter**	Grab
Oil & Grease	mg/L	15		10	Once/quarter**	Grab
<i>E. coli</i> (Note 1)	#/100 ml	126		126	Once/quarter**	Grab
Total Residual Chlorine (Note 2)	mg/L	0.017		0.008	Once/quarter**	Grab
Ammonia as N	mg/L				Once/quarter**	Grab
(May 1 – Oct 31)		*		*		
(Nov 1 – April 30)		*		*		
Nitrate + Nitrite	mg/L	*		*	Once/quarter**	Grab
MONITORING REPORTS SHALL BE SUBMITTED QUARTERLY ; THE FIRST REPORT IS DUE APRIL 28, 2014 . THERE SHALL BE NO DISCHARGE OF FLOATING SOLIDS OR VISIBLE FOAM IN OTHER THAN TRACE AMOUNTS.						

* Monitoring requirement only.

** Sample once per quarter:

Sample discharge at least once for the months of:	Report is due:
January, February, March (1st Quarter)	April 28
April, May, June (2nd Quarter)	July 28
July, August, September (3rd Quarter)	October 28
October, November, December (4th Quarter)	January 28

*** pH is measured in pH units and is not to be averaged. The pH is limited to the range of 6.5-9.0 pH units.

Note 1 – Final effluent limits of 126 cfu per 100 ml daily maximum and monthly average applicable year round due to losing stream designation.

Note 2- This effluent limit is below the minimum quantification level (ML) of the most common and practical EPA approved CLTRC methods. The department has determined the current acceptable ML for total residual chlorine to be 0.13 mg/L when using the DPD Colorimetric Method #4500 – CL G. from Standard Methods for the Examination of Waters and Wastewater. The permittee will conduct analyses in accordance with this method, or equivalent, and report actual analytical values. Measured values greater than or equal to the minimum quantification level of 0.13 mg/L will be considered violations of the permit and values less than the minimum quantification level of 0.13 mg/L will be considered to be in compliance with the permit limitation. The minimum quantification level does not authorize the discharge of chlorine in excess of the effluent limits stated in the permit. Disinfection is required year-round unless the permit specifically states that “Final limitations and monitoring requirements for Fecal Coliform are applicable only during the recreational season from April 1 through October 31.” If your permit does not require disinfection during the non-recreational months, do not chlorinate in those months. Do not chemically dechlorinate **if it is not needed to meet the limits in your permit**. If no chlorine was used in a given sampling period, an actual analysis is not necessary. Simply report as “0 mg/L” TRC.

B. FINAL EFFLUENT LIMITATIONS AND MONITORING REQUIREMENTS					PERMIT NUMBER MO-0097926	
The permittee is authorized to discharge from outfall(s) with serial number(s) as specified in the application for this permit. The final effluent limitations shall become effective upon issuance and remain in effect until expiration of the permit. Such discharges shall be controlled, limited and monitored by the permittee as specified below:						
OUTFALL NUMBER AND EFFLUENT PARAMETER(S)	UNITS	FINAL EFFLUENT LIMITATIONS			MONITORING REQUIREMENTS	
		DAILY MAXIMUM	WEEKLY AVERAGE	MONTHLY AVERAGE	MEASUREMENT FREQUENCY	SAMPLE TYPE
<u>Outfall #003</u>						
Flow	MGD	*		*	Once/month	24 hr est.
pH – Units	SU	***		***	Once/quarter**	Grab
Ammonia as N	mg/L	*		*	Once/quarter**	Grab
Temperature	°C	*		*	Once/quarter**	Grab
Total Residual Chlorine (Note 1)	mg/L	*		*	Once/quarter**	Grab
MONITORING REPORTS SHALL BE SUBMITTED <u>QUARTERLY</u> ; THE FIRST REPORT IS DUE <u>OCTOBER 28, 2011</u> . THERE SHALL BE NO DISCHARGE OF FLOATING SOLIDS OR VISIBLE FOAM IN OTHER THAN TRACE AMOUNTS.						

MO 780-0010 (8/91)

- * Monitoring requirement only.
- ** Sample once per quarter:
- *** pH is measured in pH units and is not to be averaged. The pH is limited to the range of 6.5-9.0 pH units.

Note 1- This effluent limit is below the minimum quantification level (ML) of the most common and practical EPA approved CLTRC methods. The department has determined the current acceptable ML for total residual chlorine to be 0.13 mg/L when using the DPD Colorimetric Method #4500 – CL G. from Standard Methods for the Examination of Waters and Wastewater. The permittee will conduct analyses in accordance with this method, or equivalent, and report actual analytical values. Measured values greater than or equal to the minimum quantification level of 0.13 mg/L will be considered violations of the permit and values less than the minimum quantification level of 0.13 mg/L will be considered to be in compliance with the permit limitation. The minimum quantification level does not authorize the discharge of chlorine in excess of the effluent limits stated in the permit.

B. FINAL EFFLUENT LIMITATIONS AND MONITORING REQUIREMENTS					PAGE NUMBER 7 of 13	
PERMIT NUMBER MO-0097926						
The permittee is authorized to discharge from outfall(s) with serial number(s) as specified in the application for this permit. The final effluent limitations shall become effective on January 1, 2014 and remain in effect until expiration of the permit. Such discharges shall be controlled, limited and monitored by the permittee as specified below:						
OUTFALL NUMBER AND EFFLUENT PARAMETER(S)	UNITS	FINAL EFFLUENT LIMITATIONS			MONITORING REQUIREMENTS****	
		DAILY MAXIMUM	WEEKLY AVERAGE	MONTHLY AVERAGE	MEASUREMENT FREQUENCY	SAMPLE TYPE
<u>Outfall #004</u>						
Flow	MGD	*		*	Once/month	24 hr est.
Chemical Oxygen Demand	mg/L	*		*	Once/ quarter**	Grab
Total Suspended Solids	mg/L	60		31	Once/ quarter**	Grab
pH – Units	SU	***		***	Once/ quarter**	Grab
Temperature	°F	95		*	Once/ quarter**	Grab
Ammonia as N	mg/L				Once/ quarter**	Grab
(May 1 – Oct 31)		12.0		*		
(Nov 1 – April 30)		12.0		*		
Phosphorous, Total	mg/L	*		*	Once/ quarter**	Grab
Oil & Grease	mg/L	15		10	Once/quarter**	Grab
Aluminum, Total Recoverable	µg/L	750		326	Once/quarter**	Grab
Boron, Total Recoverable	µg/L	3,511		1,151	Once/quarter**	Grab
Chromium (VI), Dissolved	µg/L	*		*	Once/quarter**	Grab
Copper, Total Recoverable	µg/L	20.5		7.0	Once/quarter**	Grab
Iron, Total Recoverable	µg/L	551		209	Once/quarter**	Grab
Zinc, Total Recoverable	µg/L	169		55	Once/quarter**	Grab
Lead, Total Recoverable	µg/L	*		*	Once/quarter**	Grab
Nickel, Total Recoverable	µg/L	*		*	Once/quarter**	Grab
Silver, Total Recoverable	µg/L	*		*	Once/quarter**	Grab

MONITORING REPORTS SHALL BE SUBMITTED <u>QUARTERLY</u> ; THE FIRST REPORT IS DUE <u>APRIL 28, 2014</u> . THERE SHALL BE NO DISCHARGE OF FLOATING SOLIDS OR VISIBLE FOAM IN OTHER THAN TRACE AMOUNTS.				
Whole Effluent Toxicity (WET) test	% Survival	See Special Conditions	once/year	composite
MONITORING REPORTS SHALL BE SUBMITTED <u>ANNUALLY</u> ; THE FIRST REPORT IS DUE <u>JANUARY 28, 2015</u> .				

MO 780-0010 (8/91)

* Monitoring requirement only.

** Sample once per quarter

*** pH is measured in pH units and is not to be averaged. The pH is limited to the range of 6.5-9.0 pH units.

**** This outfall will discharge stormwater during precipitation events, however representative samples for the purpose of this permit for this outfall should only contain process water, and not stormwater.

C. STANDARD CONDITIONS

In addition to specified conditions stated herein, this permit is subject to the attached Part I standard conditions dated October 1, 1980 and hereby incorporated as though fully set forth herein.

D. SPECIAL CONDITIONS

1. This permit may be reopened and modified, or alternatively revoked and reissued, to:
 - (a) Comply with any applicable effluent standard or limitation issued or approved under Sections 301(b)(2)(C) and (D), 304(b)(2), and 307(a) (2) of the Clean Water Act, if the effluent standard or limitation so issued or approved:
 - (1) contains different conditions or is otherwise more stringent than any effluent limitation in the permit; or
 - (2) controls any pollutant not limited in the permit.
 - (b) Incorporate new or modified effluent limitations or other conditions, if the result of a waste load allocation study, toxicity test or other information indicates changes are necessary to assure compliance with Missouri's Water Quality Standards.
 - (c) Incorporate new or modified effluent limitations or other conditions if, as the result of a watershed analysis, a Total Maximum Daily Load (TMDL) limitation is developed for the receiving waters which are currently included in Missouri's list of waters of the state not fully achieving the state's water quality standards, also called the 303(d) list.

The permit as modified or reissued under this paragraph shall also contain any other requirements of the Clean Water Act then applicable.

2. All outfalls must be clearly marked in the field.
3. Permittee will cease discharge by connection to a facility with an area-wide management plan per 10 CSR 20-6.010(3)(B) within 90 days of notice of its availability.
4. Changes in Discharges of Toxic Substances

The permittee shall notify the Director as soon as it knows or has reason to believe:

- (a) That any activity has occurred or will occur which would result in the discharge of any toxic pollutant which is not limited in the permit, if that discharge will exceed the highest of the following "notification levels:"
 - (1) One hundred micrograms per liter (100 µg/L);
 - (2) Two hundred micrograms per liter (200 µg/L) for acrolein and acrylonitrile; five hundred micrograms per liter (500 µg/L) for 2,5 dinitrophenol and for 2-methyl-4, 6-dinitrophenol; and one milligram per liter (1 mg/L) for antimony;
 - (3) Five (5) times the maximum concentration value reported for the pollutant in the permit application;
 - (4) The level established in Part A of the permit by the Director.
 - (b) That they have begun or expect to begin to use or manufacture as an intermediate or final product or byproduct any toxic pollutant, which was not reported in the permit application.
5. Report as no-discharge when a discharge does not occur during the report period.
 6. Water Quality Standards
 - (a) Discharges to waters of the state shall not cause a violation of water quality standards rule under 10 CSR 20-7.031, including both specific and general criteria.
 - (b) General Criteria. The following general water quality criteria shall be applicable to all waters of the state at all times including mixing zones. No water contaminant, by itself or in combination with other substances, shall prevent the waters of the state from meeting the following conditions:
 - (1) Waters shall be free from substances in sufficient amounts to cause the formation of putrescent, unsightly or harmful bottom deposits or prevent full maintenance of beneficial uses;
 - (2) Waters shall be free from oil, scum and floating debris in sufficient amounts to be unsightly or prevent full maintenance of beneficial uses;
 - (3) Waters shall be free from substances in sufficient amounts to cause unsightly color or turbidity, offensive odor or prevent full maintenance of beneficial uses;
 - (4) Waters shall be free from substances or conditions in sufficient amounts to result in toxicity to human, animal or aquatic life;
 - (5) There shall be no significant human health hazard from incidental contact with the water;
 - (6) There shall be no acute toxicity to livestock or wildlife watering;
 - (7) Waters shall be free from physical, chemical or hydrologic changes that would impair the natural biological community;

D. SPECIAL CONDITIONS (continued)

- (8) Waters shall be free from used tires, car bodies, appliances, demolition debris, used vehicles or equipment and solid waste as defined in Missouri's Solid Waste Law, section 260.200, RSMo, except as the use of such materials is specifically permitted pursuant to section 260.200-260.247.

7. The permittee shall develop and implement a Storm Water Pollution Prevention Plan (SWPPP). The SWPPP must be prepared within 30 days and implemented within 90 days of permit issuance. The SWPPP must be kept on-site and should not be sent to DNR unless specifically requested. The permittee shall select, install, use, operate, and maintain the Best Management Practices prescribed in the SWPPP in accordance with the concepts and methods described in the following document:

Developing Your Stormwater Pollution Prevention Plan, A Guide for Industrial Operators, (Document number EPA 833-B-09-002) published by the United States Environmental Protection Agency (USEPA) in February 2009.

The SWPPP must include the following:

- (a) An assessment of all storm water discharges associated with this facility. This must include a list of potential contaminants and an annual estimate of amounts that will be used in the described activities.
 - (b) A listing of specific Best Management Practices (BMPs) and a narrative explaining how BMPs will be implemented to control and minimize the amount of potential contaminants that may enter storm water. Minimum BMPs are listed in SPECIAL CONDITIONS #8 below.
 - (c) The SWPPP must include a schedule for a monthly site inspection and a brief written report. The inspections must include observation and evaluation of BMP effectiveness, deficiencies, and corrective measures that will be taken. Deficiencies must be corrected within seven days. Inspection reports must be kept on site with the SWPPP. These must be made available to DNR personnel upon request.
 - (d) A provision for designating an individual to be responsible for environmental matters.
 - (e) A provision for providing training to all personnel involved in material handling and storage, and housekeeping of maintenance and cleaning areas. Proof of training shall be submitted on request of DNR.
8. Permittee shall adhere to the following minimum Best Management Practices:
- (a) Prevent the spillage or loss of fluids, oil, grease, fuel, etc. from vehicle maintenance, equipment cleaning, or warehouse activities and thereby prevent the contamination of storm water from these substances.
 - (b) Provide collection facilities and arrange for proper disposal of waste products including but not limited to petroleum waste products, and solvents.
 - (c) Store all paint, solvents, petroleum products and petroleum waste products (except fuels), and storage containers (such as drums, cans, or cartons) so that these materials are not exposed to storm water or provide other prescribed BMP's such as plastic lids and/or portable spill pans to prevent the commingling of storm water with container contents. Commingled water may not be discharged under this permit. Provide spill prevention control, and/or management sufficient to prevent any spills of these pollutants from entering waters of the state. Any containment system used to implement this requirement shall be constructed of materials compatible with the substances contained and shall also prevent the contamination of groundwater.
 - (d) Provide good housekeeping practices on the site to keep solid waste from entry into waters of the state.
 - (e) Provide sediment and erosion control sufficient to prevent or control sediment loss off of the property. This could include the use of straw bales, silt fences, or sediment basins, if needed, to comply with effluent limits.
9. All fueling facilities present on the site shall adhere to applicable federal and state regulations concerning underground storage, above ground storage, and dispensers, including spill prevention, control and counter measures.
10. Before releasing water that has accumulated in secondary containment areas it must be examined for hydrocarbon odor and presence of a sheen. When the presence of hydrocarbons is indicated the water must be tested for all appropriate hydrocarbon parameters. The St. Louis Regional Office will determine, based on sampling results, if the water should be treated prior to release.
11. Substances, regulated by federal law under the Resource Conservation and Recovery Act (RCRA) and Comprehensive Environmental Response, Compensation, and Liability Act (CERLA), that are transported, stored, or used for maintenance, cleaning or repair, shall be managed according to RCRA and CERLA.

D. SPECIAL CONDITIONS (continued)

12. Whole Effluent Toxicity (WET) Test shall be conducted as follows:

SUMMARY OF ACUTE WET TESTING FOR THIS PERMIT					
OUTFALL	AEC	LC50%*	FREQUENCY	SAMPLE TYPE	MONTH
004	100%	100%	Annual	composite	Any, but report in January

* LC50 = AEC / 0.3.

Dilution Series						
100%	50%	25%	12.5%	6.25%	(Control) 100% upstream, if available	(Control) 100% Lab Water, also called synthetic water

(a) Test Schedule and Follow-Up Requirements

- (1) Perform a MULTIPLE-dilution acute WET test in the months and at the frequency specified above. For tests which are successfully passed, submit test results using the Department's WET test report form #MO-780-1899 along with complete copies of the test reports as received from the laboratory, including copies of chain-of-custody forms within 30 calendar days of availability to the WATER PROTECTION PROGRAM, P.O. Box 176, Jefferson City, MO 65102. If the effluent passes the test, do not repeat the test until the next test period.
 - (i) For discharges of stormwater, samples shall be collected within three hours from when discharge first occurs.
 - (ii) Samples submitted for analysis of stormwater discharges shall be collected as a grab.
 - (iii) For discharges of non-stormwater, samples shall be collected only when precipitation has not occurred for a period of forty-eight hours prior to sample collection. In no event shall sample collection occur simultaneously with the occurrence of precipitation excepting for stormwater samples.
 - (iv) A twenty-four hour composite sample shall be submitted for analysis of non-stormwater discharges.
 - (v) Upstream receiving water samples, where required, shall be collected upstream from any influence of the effluent where downstream flow is clearly evident.
 - (vi) Samples submitted for analysis of upstream receiving water may be collected as either a grab or twenty-four-hour composite as appropriate to the nature of the discharge.
 - (vii) Chemical and physical analysis of the upstream control and effluent sample shall occur immediately upon being received by the laboratory, prior to any manipulation of the effluent sample beyond preservation methods consistent with federal guidelines for WET testing that are required to stabilize the sample during shipping.
 - (viii) Any and all chemical or physical analysis of the effluent sample performed in conjunction with the WET test shall be performed at the 100% Effluent concentration in addition to analyses performed upon any other effluent concentration.
 - (ix) All chemical analyses included in the Missouri Department of Natural Resources WET test report form #MO-780-1899 shall be performed and results shall be recorded in the appropriate field of the report form.
 - (x) Where flow-weighted composite sample is required for analysis, the samples shall be composited at the laboratory where the test is to be performed.
 - (xi) Where in stream testing is required downstream from the discharge, sample collection shall occur immediately below the established Zone of Initial Dilution in conjunction with or immediately following a release or discharge.
 - (xii) Samples submitted for analysis of downstream receiving water may be collected as either a grab or twenty-four-hour composite as appropriate to the nature of the discharge.
 - (xiii) All instream samples, including downstream samples, shall be tested for toxicity at the 100% concentration in addition to any other assigned AEC for in-stream samples.
- (2) All failing test results along with complete copies of the test reports as received from the laboratory, INCLUDING THOSE TESTS CONDUCTED UNDER CONDITION (3) BELOW, shall be reported to the WATER PROTECTION PROGRAM, P.O. Box 176, Jefferson City, MO 65102 within 14 calendar days of the availability of the results.

D. SPECIAL CONDITIONS (continued)

12 WET test (continued)

- (3) If the effluent fails the test, a multiple dilution test shall be performed for BOTH test species within 30 calendar days and biweekly thereafter (for storm water, tests shall be performed on the next and subsequent storm water discharges as they occur, but not less than 7 days apart) until one of the following conditions are met:
 - (i) THREE CONSECUTIVE MULTIPLE-DILUTION TESTS PASS. No further tests need to be performed until next regularly scheduled test period.
 - (ii) A TOTAL OF THREE MULTIPLE-DILUTION TESTS FAIL.
 - (4) Failure of at least two multiple-dilution tests during any period of accelerated monitoring violates the permit narrative requirement for aquatic life protection.
 - (5) The permittee shall submit a summary of all test results for the test series along with complete copies of the test reports as received from the laboratory to the WATER PROTECTION PROGRAM, P.O. Box 176, Jefferson City, MO 65102 within 14 calendar days of the third failed test.
 - (6) Additionally, the following shall apply upon failure of the third MULTIPLE DILUTION test: A toxicity identification evaluation (TIE) or toxicity reduction evaluation (TRE) is automatically triggered. The permittee shall contact THE WATER PROTECTION PROGRAM within 14 calendar days from availability of the test results to ascertain as to whether a TIE or TRE is appropriate. The permittee shall submit a plan for conducting a TIE or TRE to the WATER PROTECTION PROGRAM within 60 calendar days of the date of DNR's direction to perform either a TIE or TRE. This plan must be approved by DNR before the TIE or TRE is begun. A schedule for completing the TIE or TRE shall be established in the plan approval.
 - (7) Upon DNR's approval, the TIE/TRE schedule may be modified if toxicity is intermittent during the TIE/TRE investigations. A revised WET test schedule may be established by DNR for this period.
 - (8) If a previously completed TIE has clearly identified the cause of toxicity, additional TIEs will not be required as long as effluent characteristics remain essentially unchanged and the permittee is proceeding according to a DNR approved schedule to complete a TRE and reduce toxicity. Regularly scheduled WET testing as required in the permit, without the follow-up requirements, will be required during this period.
 - (9) When WET test sampling is required to run over one DMR period, each DMR report shall contain a copy of the Department's WET test report form that was generated during the reporting period.
 - (10) Submit a concise summary in tabular format of all WET test results with the annual report.
- (b) PASS/FAIL procedure and effluent limitations:
- (1) To pass a multiple-dilution test:
 - (i) For facilities with a computed percent effluent at the edge of the zone of initial dilution, Allowable Effluent Concentration (AEC) OF 30% OR LESS, the AEC must be less than three-tenths (0.3) of the LC₅₀ concentration for the most sensitive of the test organisms; **OR**,
 - (ii) For facilities with an AEC greater than 30%, the LC₅₀ concentration must be greater than 100%; **AND**,
 - (iii) All effluent concentrations equal to or less than the AEC must be nontoxic. Mortality observed in all effluent concentrations equal to or less than the AEC shall not be significantly different (at the 95% confidence level; $p = 0.05$) than that observed in the upstream receiving-water control sample. Where upstream receiving water is not available mortality observed in the AEC test concentration shall not be significantly different (at the 95% confidence level; $p = 0.05$) than that observed in the laboratory control. The appropriate statistical tests of significance shall be consistent with the most current edition of METHODS FOR MEASURING THE ACUTE TOXICITY OF EFFLUENTS AND RECEIVING WATERS TO FRESHWATER AND MARINE ORGANISMS or other federal guidelines as appropriate or required. Failure of one multiple-dilution test may be considered an effluent limit violation.
- (c) Test Conditions
- (1) Test Type: Acute Static non-renewal
 - (2) All tests, including repeat tests for previous failures, shall include both test species listed below.
 - (3) Test species: Ceriodaphnia dubia and Pimephales promelas (fathead minnow). Organisms used in WET testing shall come from cultures reared for the purpose of conducting toxicity tests and cultured in a manner consistent with the most current USEPA guidelines. All test animals shall be cultured as described in the most current edition of Methods for Measuring the Acute Toxicity of Effluents and Receiving Waters to Freshwater and Marine Organisms.
 - (4) Test period: 48 hours at the "Acceptable Effluent Concentration" (AEC) specified above.
 - (5) Upstream receiving stream water shall be used as dilution water. If upstream water is unavailable or if mortality in the upstream water exceeds 10%, "reconstituted" water will be used as dilution water. Procedures for

D. SPECIAL CONDITIONS (continued)

12 WET test (continued)

- (6) Multiple-dilution tests will be run with:
 - (i) 100%, 50%, 25%, 12.5%, and 6.25% effluent, unless the AEC is less than 25% effluent, in which case dilutions will be 4 times the AEC, two times the AEC, AEC, 1/2 AEC and 1/4 AEC;
 - (ii) 100% receiving-stream water (if available), collected upstream of the outfall at a point beyond any influence of the effluent; and
 - (iii) Reconstituted water.
- (7) If reconstituted-water control mortality for a test species exceeds 10%, the entire test will be rerun.
- (8) If upstream control mortality exceeds 10%, the entire test will be rerun using reconstituted water as the dilutant.

E.. SCHEDULE OF COMPLIANCE

- 1) By **May 15, 2012** the permittee shall submit an engineering report to describe facility upgrades and modifications that will be necessary to allow the facility to meet the final effluent limitations for outfalls #001 and #004 as described in Table B on pages 5 and 7 of this permit.
- 2) By **June 30, 2012**, the permittee shall submit an application for a construction permit to construct facilities as necessary to enable the treatment facility to comply with the final effluent limitations described herein.
- 3) By **June 30, 2013**, the permittee shall submit a construction progress report.
- 4) By **December 31, 2013**, the permittee shall complete construction of whatever facilities are needed to comply with the final effluent limitations described herein

SUMMARY OF TEST METHODOLOGY FOR ACUTE WHOLE-EFFLUENT TOXICITY TESTS

Whole-effluent-toxicity test required in NPDES permits shall use the following test conditions when performing single or multiple dilution methods. Any future changes in methodology will be supplied to the permittee by the Missouri Department of Natural Resources (MDNR). Unless more stringent methods are specified by the DNR, the procedures shall be consistent with the most current edition of Methods for Measuring the Acute Toxicity of Effluents and Receiving Waters to Freshwater and Marine Organisms.

Test conditions for Ceriodaphnia dubia:

Test duration:	48 h
Temperature:	25 ± 1°C Temperatures shall not deviate by more than 3°C during the test.
Light Quality:	Ambient laboratory illumination
Photoperiod:	16 h light, 8 h dark
Size of test vessel:	30 mL (minimum)
Volume of test solution:	15 mL (minimum)
Age of test organisms:	<24 h old
No. of animals/test vessel:	5
No. of replicates/concentration:	4
No. of organisms/concentration:	20 (minimum)
Feeding regime:	None (feed prior to test)
Aeration:	None
Dilution water:	Upstream receiving water; if no upstream flow, synthetic water modified to reflect effluent hardness.
Endpoint:	Pass/Fail (Statistically significant Mortality when compared to upstream receiving water control or synthetic control if upstream water was not available at $p \leq 0.05$)
Test acceptability criterion:	90% or greater survival in controls

Test conditions for Pimephales promelas:

Test duration:	48 h
Temperature:	25 ± 1°C Temperatures shall not deviate by more than 3°C during the test.
Light Quality:	Ambient laboratory illumination
Photoperiod:	16 h light/ 8 h dark
Size of test vessel:	250 mL (minimum)
Volume of test solution:	200 mL (minimum)
Age of test organisms:	1-14 days (all same age)
No. of animals/test vessel:	10
No. of replicates/concentration:	4 (minimum) single dilution method 2 (minimum) multiple dilution method
No. of organisms/concentration:	40 (minimum) single dilution method 20 (minimum) multiple dilution method
Feeding regime:	None (feed prior to test)
Aeration:	None, unless DO concentration falls below 4.0 mg/L; rate should not exceed 100 bubbles/min.
Dilution water:	Upstream receiving water; if no upstream flow, synthetic water modified to reflect effluent hardness.
Endpoint:	Pass/Fail (Statistically significant Mortality when compared to upstream receiving water control or synthetic control if upstream water was not available at $p \leq 0.05$)
Test Acceptability criterion:	90% or greater survival in controls

Missouri Department of Natural Resources
FACT SHEET
FOR THE PURPOSE OF RENEWAL
OF
MO-0097926
ENGINEERED COIL COMPANY, DBA DRS MARLO COIL

The Federal Water Pollution Control Act ("Clean Water Act" Section 402 Public Law 92-500 as amended) established the National Pollution Discharge Elimination System (NPDES) permit program. This program regulates the discharge of pollutants from point sources into the waters of the United States, and the release of storm water from certain point sources. All such discharges are unlawful without a permit (Section 301 of the "Clean Water Act"). After a permit is obtained, a discharge not in compliance with all permit terms and conditions is unlawful. Missouri State Operating Permits (MSOPs) are issued by the Director of the Missouri Department of Natural Resources (department) under an approved program, operating in accordance with federal and state laws (Federal "Clean Water Act" and "Missouri Clean Water Law" Section 644 as amended). MSOPs are issued for a period of five (5) years unless otherwise specified.

As per [40 CFR Part 124.8(a)] and [10 CSR 20-6.020(1)2.] a Factsheet shall be prepared to give pertinent information regarding the applicable regulations, rationale for the development of effluent limitations and conditions, and the public participation process for the Missouri State Operating Permit (operating permit) listed below.

A Factsheet is not an enforceable part of an operating permit.

This Factsheet is for:

- ☐ Major
- ☐ Minor
- ☒ Industrial Facility
- ☐ Variance
- ☐ Master General Permit
- ☐ General Permit Covered Facility
- ☐ And/or permit with widespread public interest

Part I – Facility Information

Facility Type: IND
Facility SIC Code(s): 3585

Facility Description:

Manufacturing of Commercial and Industrial Refrigeration Equipment

Have any changes occurred at this facility or in the receiving water body that effects effluent limit derivation?

☒ No

Application Date: January 7, 2008

Expiration Date: July 10, 2008

Last Inspection: January 14, 2008

☒ Non Compliance

See explanation below in comments section

OUTFALL(S) TABLE:

OUTFALL	DESIGN FLOW (CFS)	TREATMENT LEVEL	EFFLUENT TYPE	DISTANCE TO CLASSIFIED SEGMENT (MI)
#001	0.005	Secondary	Domestic	4.00
#003	0.017	None	Non-contact cooling water	4.10
#004	0.015	Primary/ Oil Sock	Industrial	4.14

NA – Not applicable

Please See APPENDIX B – OUTFALL LOCATION/DESCRIPTION

Comments:

The most recent inspection (January 14, 2008) found two violations.

- 1) small amounts of solids were found in the pool below the outfall;
- 2) No warning signs were posted at the domestic sewage treatment facility for outfall #001.

The permittee responded by the required date (February 29, 2008) and corrected the two deficiencies by;

- 1) Removing solids from the Sock filters and chlorine contact chamber, installing 12 new sock filters, and reevaluating sludge removal timeframes.
- 2) Installation of appropriate warning signs around the facility.

The response letter included photographs of the improvements made. The facility is assumed to now be in compliance.

Total Phosphorous – The department has placed developing phosphorous limits for streams into its strategic plan for the next five years. While development of this regulation has yet to begin a review from other states that already regulate phosphorous indicate that their discharge limits are usually around 1.0 mg/L. There is no reason at this time to assume that any future regulation in Missouri would differ significantly. A review of data for Outfalls #002-#005 shows that these discharges would be unable to meet this limitation. Monitoring only for phosphorous in these outfalls will continue, and it recommended that the permittee investigate methods of phosphorous removal now, so that they are prepared if limitations are required in their next renewal in 2015.

Permittee's response to previous draft permit dated December 16, 2002 – The permittee indicated the use of Lead, Nickel, Manganese, Silver, and Antimony in their production process. These parameters will be included as monitoring only in this permit so that upon renewal a reasonable potential analysis can be done. Again it is recommended that the permittee investigate removal methods now.

Outfalls #002, #005, #006 – Based on conversations with the permittee during the renewal process the permittee has modified their operations, and these outfalls have been eliminated.

Outfalls #007, #008, DS1, and DS2 – The administrative rational for these outfalls have changed since the last renewal, and these requirements are being removed from the current permit. They may be required again upon the next renewal.

Outfall #004 – This outfall will discharge stormwater during precipitation events, however representative samples for the purpose of this permit for this outfall should only contain process water, and not stormwater.

Receiving Water Body's Water Quality & Facility Performance History:

The receiving water body, Antire Creek, has been determined to be a losing stream. There are private wells in the area, therefore the drinking water limitations from 10 CSR 20-7 Table A apply. The previous permit required In-stream monitoring, the administrative rational for this requirement has changed since the last renewal and this requirement is being removed for the current permit. In-stream monitoring may be required again upon the next renewal.

OUTFALL	FACILITY PERFORMANCE HISTORY
#001	<p>Domestic Sewage – May 2003 to February 2009 (24 Samples):</p> <p><u>BOD</u> – 22 Samples. 15 mg/L maximum. 10 mg/L average. no exceedances.</p> <p><u>TSS</u> – 22 Samples. 20 mg/L maximum. 15 mg/L average. no exceedances.</p> <p><u>pH</u> – 22 Samples. Range of 6-9. no exceedances.</p> <p><u>Fecal Coliform</u> – 22 Samples. 1000 col/100mL maximum. 400 col/100mL average. no exceedances.</p> <p><u>Total Residual Chlorine</u> – 22 Samples. 1.0 mg/L maximum. no exceedances.</p>
#002	<p>Industrial Process Water - May 2003 to February 2009 (24 Samples):</p> <p><u>COD</u> - 19 Samples; 68.8 mg/L average. Monitoring Only.</p> <p><u>Settleable Solids</u> - 19 Samples. 1.0 mL/L maximum. 0.5 mL/L average. One exceedance (5).</p> <p><u>pH</u> – 19 Samples. 6-9 SU range. no exceedances.</p> <p><u>Oil & Grease</u> – 19 Samples. 15 mg/L maximum. 10 mg/L average. One exceedance (17).</p> <p><u>Temperature</u>– 18 Samples. 72.1 °F average. 95 °F maximum. no exceedances.</p> <p><u>Ammonia as N</u> – 19 Samples; 0.34 mg/L average. Monitoring Only (RPA needed)</p> <p><u>Phosphorous as P, total</u> – 19 Samples; 27.4 mg/L average. Monitoring Only.</p> <p><u>Aluminum, total</u> – 19 Samples; 0.27 mg/L average. Monitoring Only (RPA needed)</p> <p><u>Barium, total</u> – 19 Samples; 0.09 mg/L average. Monitoring Only (RPA needed)</p> <p><u>Boron, total</u> –19 Samples; 3.61 mg/L average. Monitoring Only (RPA needed)</p> <p><u>Chromium, total</u> – 19 Samples; 0.013 mg/L average. Monitoring Only (RPA needed)</p> <p><u>Copper, total</u> – 19 Samples; 0.13 mg/L average. Monitoring only. (SOC needed)</p> <p><u>Iron, total</u> – 19 Samples; 2.53 mg/L average. Monitoring Only (RPA needed)</p> <p><u>Zinc, total</u> – 19 Samples; 2.22 mg/L average. Monitoring Only (RPA needed)</p>
#003	<p>Industrial Process/Storm Water - May 2003 to February 2009 (24 Samples):</p> <p><u>COD</u> - 19 Samples; 11.9 mg/L average. Monitoring Only.</p> <p><u>Settleable Solids</u> - 19 Samples. 1.0 mL/L maximum. 0.5 mL/L average. no exceedances.</p> <p><u>pH</u> – 19 Samples. 6-9 SU range. Two exceedances (5.1, 5.9)</p> <p><u>Oil & Grease</u> – 19 Samples. 15 mg/L maximum. 10 mg/L average. no exceedances.</p> <p><u>Temperature</u>– 18 Samples. 58.1 °F average. 95 °F maximum. no exceedances.</p> <p><u>Ammonia as N</u> – 19 Samples; 0.56 mg/L average. Monitoring Only (RPA needed)</p> <p><u>Phosphorous as P, total</u> – 19 Samples; 0.84 mg/L average. Monitoring Only</p> <p><u>Aluminum, total</u> – 19 Samples; 0.27 mg/L average. Monitoring Only (RPA needed)</p> <p><u>Barium, total</u> – 19 Samples; 0.03 mg/L average. Monitoring Only (RPA needed)</p> <p><u>Boron, total</u> –19 Samples; 0.19 mg/L average. Monitoring Only (RPA needed)</p> <p><u>Chromium, total</u> – 19 Samples; 0.007 mg/L average. Monitoring Only (RPA needed)</p> <p><u>Copper, total</u> – 19 Samples; 0.028 mg/L average. Monitoring only. (SOC needed)</p> <p><u>Iron, total</u> – 19 Samples; 0.83 mg/L average. Monitoring Only (RPA needed)</p> <p><u>Zinc, total</u> – 19 Samples; 0.57 mg/L average. Monitoring Only (RPA needed)</p>
#004	<p>Industrial Process/Storm Water - May 2003 to February 2009 (24 Samples):</p> <p><u>COD</u> - 19 Samples; 27.5 mg/L average. Monitoring Only.</p> <p><u>Settleable Solids</u> - 19 Samples. 1.0 mL/L maximum. 0.5 mL/L average. no exceedances.</p> <p><u>pH</u> – 19 Samples. 6-9 SU range. no exceedances.</p> <p><u>Oil & Grease</u> – 19 Samples. 15 mg/L maximum. 10 mg/L average. no exceedances.</p> <p><u>Temperature</u>– 18 Samples. 59.5 °F average. 95 °F maximum. no exceedances.</p> <p><u>Ammonia as N</u> – 19 Samples; 0.23 mg/L average. Monitoring Only (RPA needed)</p> <p><u>Phosphorous as P, total</u> – 19 Samples; 4.0 mg/L average. Monitoring Only</p> <p><u>Aluminum, total</u> – 19 Samples; 0.31 mg/L average. Monitoring Only (RPA needed)</p>

#004 cont.	<u>Barium, total</u> – 19 Samples; 0.06 mg/L average. Monitoring Only (RPA needed) <u>Boron, total</u> –19 Samples; 2.6 mg/L average. Monitoring Only (RPA needed) <u>Chromium, total</u> – 19 Samples; 0.0088 mg/L average. Monitoring Only (RPA needed) <u>Copper, total</u> – 19 Samples; 0.65 mg/L average. Monitoring only. (SOC needed.) <u>Iron, total</u> – 19 Samples; 0.73 mg/L average. Monitoring Only (RPA needed) <u>Zinc, total</u> – 19 Samples; 0.58 mg/L average. Monitoring Only (RPA needed)
#005	Industrial Process Water - May 2003 to February 2009 (24 Samples): <u>COD</u> - 19 Samples; 23.9 mg/L average. Monitoring Only. <u>Settleable Solids</u> - 19 Samples. 1.0 mL/L maximum. 0.5 mL/L average. no exceedances. <u>pH</u> – 19 Samples. 6-9 SU range. no exceedances. <u>Oil & Grease</u> – 19 Samples. 15 mg/L maximum. 10 mg/L average. One exceedance (18). <u>Temperature</u> – 18 Samples. 78.1 °F average. 95 °F maximum. no exceedances. <u>Ammonia as N</u> – 19 Samples; 0.44 mg/L average. Monitoring Only (RPA needed) <u>Phosphorous as P, total</u> – 19 Samples; 26 mg/L average. Monitoring Only <u>Aluminum, total</u> – 19 Samples; 0.21 mg/L average. Monitoring Only (RPA needed) <u>Barium, total</u> – 19 Samples; 0.04 mg/L average. Monitoring Only (RPA needed) <u>Boron, total</u> –19 Samples; 5.7 mg/L average. Monitoring Only (RPA needed) <u>Chromium, total</u> – 19 Samples; 0.009 mg/L average. Monitoring Only (RPA needed) <u>Copper, total</u> – 19 Samples; 0.77 mg/L average. Monitoring only. (SOC needed. AQL max is 0.032) <u>Iron, total</u> – 19 Samples; 1.1 mg/L average. Monitoring Only (RPA needed) <u>Zinc, total</u> – 19 Samples; 0.08 mg/L average. Monitoring Only (RPA needed)
#007	Industrial Stormwater - May 2003 to February 2009 (24 Samples): <u>COD</u> - 18 Samples; 120 mg/L maximum. 60 mg/L average. no exceedances. 17.2 mg/L average. <u>Settleable Solids</u> - 18 Samples. 1.0 mL/L maximum. 0.5 mL/L average. no exceedances. <u>pH</u> – 18 Samples. 6-9 SU range. no exceedances. <u>Oil & Grease</u> – 18 Samples. 15 mg/L maximum. 10 mg/L average. no exceedances. 4.0 mg/L average. (RPA needed)
#008	Industrial Stormwater - May 2003 to February 2009 (24 Samples): <u>COD</u> - 19 Samples; 120 mg/L maximum. 60 mg/L average. no exceedances. 12.7 mg/L average. <u>Settleable Solids</u> - 19 Samples. 1.0 mL/L maximum. 0.5 mL/L average. no exceedances. <u>pH</u> – 19 Samples. 6-9 SU range. no exceedances. <u>Oil & Grease</u> – 19 Samples. 15 mg/L maximum. 10 mg/L average. . no exceedances. 2.6 mg/L average. (RPA needed)

Part II – Operator Certification Requirements

As per [10 CSR 20-6.010(8) Terms and Conditions of a Permit], permittees shall operate and maintain facilities to comply with the Missouri Clean Water Law and applicable permit conditions and regulations. Operators or supervisors of operations at regulated wastewater treatment facilities shall be certified in accordance with [10 CSR 20-9.020(2)] and any other applicable state law or regulation. As per [10 CSR 20-9.010(2)(A)], requirements for operation by certified personnel shall apply to all wastewater treatment systems, if applicable, as listed below:

Check boxes below that are applicable to the facility;

- Owned or operated by or for:
 - ☐ Municipalities
 - ☐ Public Sewer District
 - ☐ County
 - ☐ Public Water Supply Districts
 - ☐ Private sewer company regulated by the Public Service Commission
 - ☐ State or Federal agencies

Each of the above entities are only applicable if they have a Population Equivalent greater than two hundred (200) and/or fifty (50) or more service connections.

- Department required: ☒
The Department requires this facility to retain the services of a certified operator due to: The complexity of the treatment system and the receiving stream being classified as losing.

This facility currently requires an operator with a “C” Certification Level. Please see **Appendix A - Classification Worksheet** Modifications made to the wastewater treatment facility may cause the classification to be modified.

Operator’s Name: Mel Pfeffer
Certification Number: 2610
Certification Level: A

Part III – Receiving Stream Information

APPLICABLE DESIGNATIONS OF WATERS OF THE STATE:

As per Missouri's Effluent Regulations [10 CSR 20-7.015], the waters of the state are divided into the below listed seven (7) categories. Each category lists effluent limitations for specific parameters, which are presented in each outfall's Effluent Limitation Table and further discussed in the Derivation & Discussion of Limits section.

☐ Missouri or Mississippi River [10 CSR 20-7.015(2)]

☐ Lake or Reservoir [10 CSR 20-7.015(3)]

☒ Losing [10 CSR 20-7.015(4)]

☐ Metropolitan No-Discharge [10 CSR 20-7.015(5)]

☐ Special Stream [10 CSR 20-7.015(6)]

☐ Subsurface Water [10 CSR 20-7.015(7)]

☐ All Other Waters [10 CSR 20-7.015(8)]

10 CSR 20-7.031 Missouri Water Quality Standards, the department defines the Clean Water Commission water quality objectives in terms of "water uses to be maintained and the criteria to protect those uses." The receiving stream and/or 1st classified receiving stream's beneficial water uses to be maintained are located in the Receiving Stream Table located below in accordance with [10 CSR 20-7.031(3)].

RECEIVING STREAM(S) TABLE:

WATERBODY NAME	CLASS	WBID	DESIGNATED USES*	8-DIGIT HUC	EDU**
Antire Creek	(U)		General, Losing	07140102	Ozark Meramec
Antire Creek	(P)	02188	LWW, AQL, WBC-B***		

* - Irrigation (IRR), Livestock & Wildlife Watering (LWW), Protection of Warm Water Aquatic Life and Human Health-Fish Consumption (AQL), Cool Water Fishery(CLF), Cold Water Fishery (CDF), Whole Body Contact Recreation (WBC), Secondary Contact Recreation (SCR), Drinking Water Supply (DWS), Industrial (IND), Groundwater (GRW).

** - Ecological Drainage Unit

*** - UAA has not been conducted.

RECEIVING STREAM(S) LOW-FLOW VALUES TABLE:

RECEIVING STREAM (U, C, P)	LOW-FLOW VALUES (CFS)		
	1Q10	7Q10	30Q10
Antire Creek (U)	0.0	0.0	0.0
Antire Creek (P)	0.1	0.1	1.0

Mixing Zone: Not Allowed [10 CSR 20-7.031(4)(A)4.B.(I)(a)].

Zone of Initial Dilution: Not Allowed [10 CSR 20-7.031(4)(A)4.B.(I)(b)].

RECEIVING STREAM MONITORING REQUIREMENTS:

No receiving water monitoring requirements recommended at this time.

Part IV – Rationale and Derivation of Effluent Limitations & Permit Conditions

ALTERNATIVE EVALUATIONS FOR NEW FACILITIES:

As per [10 CSR 20-7.015(4)(A)], discharges to losing streams shall be permitted only after other alternatives including land application, discharges to a gaining stream and connection to a regional wastewater treatment facility have been evaluated and determined to be unacceptable for environmental and/or economic reasons.

☒ Not Applicable

The facility does not discharge to a Losing Stream as defined by [10 CSR 20-2.010(36)] & [10 CSR 20-7.031(1)(N)], or is an existing facility.

ANTI-BACKSLIDING:

A provision in the Federal Regulations [CWA §303(d)(4); CWA §402(c); 40 CFR Part 122.44(I)] that requires a reissued permit to be as stringent as the previous permit with some exceptions.

☒ All limits in this Factsheet are at least as protective as those previously established; therefore, backsliding does not apply.

ANTIDEGRADATION:

In accordance with Missouri's Water Quality Standard [10 CSR 20-7.031(2)], the department is to document by means of Antidegradation Review that the use of a water body's available assimilative capacity is justified. Degradation is justified by documenting the socio-economic importance of a discharging activity after determining the necessity of the discharge.

☒

Renewal no degradation proposed and no further review necessary.

AREA-WIDE WASTE TREATMENT MANAGEMENT & CONTINUING AUTHORITY:

As per [10 CSR 20-6.010(3)(B)], ...An applicant may utilize a lower preference continuing authority by submitting, as part of the application, a statement waiving preferential status from each existing higher preference authority, providing the waiver does not conflict with any area-wide management plan approved under section 208 of the Federal Clean Water Act or any other regional sewage service and treatment plan approved for higher preference authority by the department.

BIO-SOLIDS, SLUDGE, & SEWAGE SLUDGE:

Bio-solids are solid materials resulting from wastewater treatment that meet federal and state criteria for beneficial uses (i.e. fertilizer). Sludge is any solid, semi-solid, or liquid waste generated from a municipal, commercial, or industrial wastewater treatment plant, water supply treatment plant, or air pollution control facility or any other such waste having similar characteristics and effect. Sewage sludge is solids, semi-solids, or liquid residue generated during the treatment of domestic sewage in a treatment works; including but not limited to, domestic septage; scum or solids removed in primary, secondary, or advanced wastewater treatment process; and a material derived from sewage sludge. Sewage sludge does not include ash generated during the firing of sewage sludge in a sewage sludge incinerator or grit and screening generated during preliminary treatment of domestic sewage in a treatment works.

☒ Not Applicable

This condition is not applicable to the permittee for this specific facility.

COMPLIANCE AND ENFORCEMENT:

Enforcement is the action taken by the Water Protection Program (WPP) to bring an entity into compliance with the Missouri Clean Water Law, its implementing regulations, and/or any terms and conditions of an operating permit. The primary purpose of the enforcement activity in the WPP is to resolve violations and return the entity to compliance.

☒ Not Applicable

The permittee/facility is not currently under Water Protection Program enforcement action.

PRETREATMENT PROGRAM:

The reduction of the amount of pollutants, the elimination of pollutants, or the alteration of the nature of pollutant properties in wastewater prior to or in lieu of discharging or otherwise introducing such pollutants into a Publicly Owned Treatment Works [40 CFR Part 403.3(q)].

Pretreatment programs are required at any POTW (or combination of POTW operated by the same authority) and/or municipality with a total design flow greater than 5.0 MGD and receiving industrial wastes that interfere with or pass through the treatment works or are

otherwise subject to the pretreatment standards. Pretreatment programs can also be required at POTWs/municipals with a design flow less than 5.0 MGD if needed to prevent interference with operations or pass through.

Several special conditions pertaining to the permittee's pretreatment program may be included in the permit, and are as follows:

- Implementation and enforcement of the program,
- Annual pretreatment report submittal,
- Submittal of list of industrial users,
- Technical evaluation of need to establish local limitations, and
- Submittal of the results of the evaluation

☒ Not Applicable

The permittee, at this time, is not required to have a Pretreatment Program or does not have an approved pretreatment program.

REASONABLE POTENTIAL ANALYSIS (RPA):

Federal regulation [40 CFR Part 122.44(d)(1)(i)] requires effluent limitations for all pollutants that are or may be discharged at a level that will cause or have the reasonable potential to cause or contribute to an in-stream excursion above narrative or numeric water quality standard.

In accordance with [40 CFR Part 122.44(d)(iii)] if the permit writer determines that any give pollutant has the reasonable potential to cause, or contribute to an in-stream excursion above the WQS, the permit must contain effluent limits for that pollutant.

☒ Applicable

A RPA was conducted on appropriate parameters. Please see **APPENDIX C – RPA RESULTS**.

Non-Detected Sample Results – At this time there is no guidance as to what value to use for a “non-detect” result in the RPA analysis. An EPA Draft RCRA groundwater-monitoring guidance from 1989 suggests three options:

- 1) non-detect is equal to 0.
- 2) non-detect is equal one half the detection limit.
- 3) non-detect is equal to the detection limit itself.

The statistical method that the RPA uses requires the use of a safety multiplier that is determined based on the variability and size of the data set. By using any of the above methods the size data set increase and its variability decreases both of which will decrease the safety factor. As such “non-detect” values will be excluded from the data set used in the RPA calculations. This will result in a smaller and more variable data set and a more conservative (large) safety factor.

Chromium – The data submitted was for total chromium, however the toxicity of Chromium III and Chromium VI are significantly different with Chromium VI being much more toxic to aquatic life. As the abundance of each is unknown at this time the RPA was done on the assumption that all the chromium reported in the discharge monitoring reports was Chromium VI as a worse case scenario. RPAs that do show reasonable potential under the worse case scenario will require five more years to monitor of Chromium VI for this permit cycle. Upon the next renewal in 2014 a RPA for just Chromium VI will be done. If at that time the RPA shows reasonable potential the next permit will have a schedule of compliance resulting with water quality based final effluent limitation.

RPA in regards to permit renewal – The permittee will need to sample in accordance with the appropriate application renewal forms for the parameters that are removed based on this RPA to ensure that any process changes have not affected the quality of plant effluent.

REMOVAL EFFICIENCY:

Removal efficiency is a method by which the Federal Regulations define Secondary Treatment and Equivalent to Secondary Treatment, which applies to Biochemical Oxygen Demand 5-day (BOD₅) and Total Suspended Solids (TSS) for Publicly Owned Treatment Works (POTWs)/municipals. Please see the United States Environmental Protection Agency's (EPA) website for interpretation of percent removal requirements for National Pollutant Discharge Elimination System Permit Application Requirements for Publicly Owned Treatment Works and Other Treatment Works Treating Domestic Sewage @ www.epa.gov/fedrgstr/EPA-WATER/1999/August/Day-04/w18866.htm.

☒ Not Applicable

Influent monitoring is not being required to determine percent removal.

SANITARY SEWER OVERFLOWS (SSOs), BYPASSES, INFLOW & INFILTRATION (I&I) – PREVENTION/REDUCTION:

Sanitary Sewer Systems (SSSs) are municipal wastewater collection system that convey domestic, commercial, and industrial wastewater, and limited amounts of infiltrated groundwater and storm water (i.e. I&I), to a POTW. SSSs are not designed to collect large amounts of storm water runoff from precipitation events.

Untreated or partially treated discharges from SSSs are commonly referred to as SSOs. SSOs have a variety of causes including blockages, line breaks, sewer defects that allow excess storm water and ground water to overload the system, lapses in sewer system operation and maintenance, inadequate sewer design and construction, power failures, and vandalism. A SSO is defined as an untreated or partially treated sewage release from a SSS. SSOs can occur at any point in an SSS, during dry weather or wet weather. SSOs include overflows that reach waters of the state. SSOs also include overflows out of manholes and onto city streets, sidewalks, and other terrestrial locations. SSSs can back up into buildings, including private residences. When sewage backups are caused by problems in the publicly-owned portion of an SSS, they are considered SSOs.

☒ Not Applicable

This facility is not required to develop or implement a program for maintenance and repair of the collection system; however, it is a violation of Missouri State Environmental Laws and Regulations to allow untreated wastewater to discharge to waters of the state.

SCHEDULE OF COMPLIANCE (SOC):

A schedule of remedial measures included in a permit, including an enforceable sequence of interim requirements (actions, operations, or milestone events) leading to compliance with the Missouri Clean Water Law, its implementing regulations, and/or the terms and conditions of an operating permit.

☒ Applicable

The time given for effluent limitations of this permit listed under Interim Effluent Limitation and Final Effluent Limitations were established in accordance with [10 CSR 20-7.031(10)].

STORM WATER POLLUTION PREVENTION PLAN (SWPPP):

In accordance with 40 CFR 122.44(k) *Best Management Practices (BMPs)* to control or abate the discharge of pollutants when: (1) Authorized under section 304(e) of the Clean Water Act (CWA) for the control of toxic pollutants and hazardous substances from ancillary industrial activities; (2) Authorized under section 402(p) of the CWA for the control of storm water discharges; (3) Numeric effluent limitations are infeasible; or (4) the practices are reasonably necessary to achieve effluent limitations and standards or to carry out the purposes and intent of the CWA.

In accordance with the EPA's *Storm Water Management for Industrial Activities: Developing Pollution Prevention Plans and Best Management Practices* [EPA 832-R-92-006] (Storm Water Management), BMPs are measures or practices used to reduce the amount of pollution entering (regarding this operating permit) waters of the state. BMPs may take the form of a process, activity, or physical structure.

Additionally in accordance with the Storm Water Management, a SWPPP is a series of steps and activities to (1) identify sources of pollution or contamination, and (2) select and carry out actions which prevent or control the pollution of storm water discharges.

Applicable ☒.

A SWPPP shall be developed and implemented for each site and shall incorporate required practices identified by the department with jurisdiction, incorporate erosion control practices specific to site conditions, and provide for maintenance and adherence to the plan.

VARIANCE:

As per the Missouri Clean Water Law § 644.061.4, variances shall be granted for such period of time and under such terms and conditions as shall be specified by the commission in its order. The variance may be extended by affirmative action of the commission. In no event shall the variance be granted for a period of time greater than is reasonably necessary for complying with the Missouri Clean Water Law §§644.006 to 644.141 or any standard, rule or regulation promulgated pursuant to Missouri Clean Water Law §§644.006 to 644.141.

☒ Not Applicable

This operating permit is not drafted under premises of a petition for variance.

WASTELOAD ALLOCATIONS (WLA) FOR LIMITS:

As per [10 CSR 20-2.010(78)], the amount of pollutant each discharger is allowed by the department to release into a given stream after the department has determined total amount of pollutant that may be discharged into that stream without endangering its water quality.

☒ Applicable

Wasteload allocations were calculated where applicable using water quality criteria or water quality model results and the dilution equation below:

$$C = \frac{(C_s \times Q_s) + (C_e \times Q_e)}{(Q_e + Q_s)} \quad (\text{EPA/505/2-90-001, Section 4.5.5})$$

Where C = downstream concentration
Cs = upstream concentration
Qs = upstream flow
Ce = effluent concentration
Qe = effluent flow

Chronic wasteload allocations were determined using applicable chronic water quality criteria (CCC: criteria continuous concentration) and stream volume of flow at the edge of the mixing zone (MZ). Acute wasteload allocations were determined using applicable water quality criteria (CMC: criteria maximum concentration) and stream volume of flow at the edge of the zone of initial dilution (ZID).

Water quality based maximum daily and average monthly effluent limitations were calculated using methods and procedures outlined in USEPA's "Technical Support Document For Water Quality-based Toxics Control" (EPA/505/2-90-001).

WLA MODELING:

There are two general types of effluent limitations, technology-based effluent limits (TBELs) and water quality based effluent limits (WQBELs). If TBELs do not provide adequate protection for the receiving waters, then WQBEL must be used.

☒ Not Applicable

A WLA study was either not submitted or determined not applicable by department staff.

WATER QUALITY STANDARDS:

Per [10 CSR 20-7.031(3)], General Criteria shall be applicable to all waters of the state at all times including mixing zones. Additionally, [40 CFR 122.44(d)(1)] directs the department to establish in each NPDES permit to include conditions to achieve water quality established under Section 303 of the Clean Water Act, including State narrative criteria for water quality.

WHOLE EFFLUENT TOXICITY (WET) TEST:

A WET test is a quantifiable method of determining if a discharge from a facility may be causing toxicity to aquatic life by itself, in combination with or through synergistic responses when mixed with receiving stream water.

☒ Applicable

In accordance with the Clean Water Act (CWA) §101(a)(3), requiring WET testing is reasonably appropriate for site-specific Missouri State Operating Permits for discharges to waters of the state issued under the National Pollutant Discharge Elimination System. Furthermore, WET testing is a means by which the department determines that [10 CSR 20-7.031(3)(D, F, & G)] are being met by the permitted facility. In addition to justification for the WET testing, WET tests are required under [10 CSR 20-6.010(8)(A)4] to be performed by specialists who are properly trained in conducting the test according to the methods prescribed by the Federal Government as referenced in [40 CFR Part 136]. WET test will be required by all facilities meeting the following criteria:

☐ Facility is a designated Major.

☐ Facility continuously or routinely exceeds its design flow.

☐ Facility (industrial) that alters its production process throughout the year.

☐ Facility handles large quantities of toxic substances, or substances that are toxic in large amounts.

☒ Facility has Water Quality-based Effluent Limitations for toxic substances (other than NH₃)

☐ Facility is a municipality or domestic discharger with a Design Flow > 22,500 gpd.

☐ Other - Please justify

303(d) LIST & TOTAL MAXIMUM DAILY LOAD (TMDL):

Section 303(d) of the federal Clean Water Act requires that each state identify waters that are not meeting water quality standards and for which adequate water pollution controls have not been required. Water quality standards protect such beneficial uses of water as whole body contact (such as swimming), maintaining fish and other aquatic life, and providing drinking water for people, livestock and wildlife. The 303(d) list helps state and federal agencies keep track of waters that are impaired but not addressed by normal water pollution control programs.

A TMDL is a calculation of the maximum amount of a given pollutant that a body of water can absorb before its water quality is affected. If a water body is determined to be impaired as listed on the 303(d) list, then a watershed management plan will be developed that shall include the TMDL calculation

☒ Not Applicable

This facility does not discharge to a 303(d) listed stream.

Part V – Effluent Limits Determination

Outfall #001 – Domestic wastewater Outfall

EFFLUENT LIMITATIONS TABLE:

PARAMETER	UNIT	BASIS FOR LIMITS	DAILY MAXIMUM	WEEKLY AVERAGE	MONTHLY AVERAGE	MODIFIED	PREVIOUS PERMIT LIMITATIONS
FLOW	GPD	1	*		*	No	*/*
BOD ₅	MG/L	1		15	10	No	15/10
TSS	MG/L	1		20	15	No	20/15
pH	SU	1	6.5-9.0		6.5-9.0	YES	6-9
AMMONIA AS N (MAY 1 – OCT 31)	MG/L	2/3/5	*		*	YES	***
AMMONIA AS N (NOV 1 – APR 30)	MG/L	2/3/5	*		*	YES	***
NITRATE + NITRITE	MG/L	9	*		*	YES	***
ESCHERICHIA COLI	**	1/2	126		126	YES	***
CHLORINE, TOTAL RESIDUAL	MG/L	1/2	0.017		0.008	YES	1.0/1.0
MONITORING FREQUENCY	Please see Minimum Sampling and Reporting Frequency Requirements in the Derivation and Discussion Section below.						

* - Monitoring requirement only

** - # of colonies/100mL; the Monthly Average for ESCHERICHIA COLI is a geometric mean.

*** - Parameter not previously established in previous state operating permit.

N/A – Not applicable

Basis for Limitations Codes:

- | | |
|--|------------------------------------|
| 1. State or Federal Regulation/Law | 7. Antidegradation Policy |
| 2. Water Quality Standard (includes RPA) | 8. Water Quality Model |
| 3. Water Quality Based Effluent Limits | 9. Best Professional Judgment |
| 4. Lagoon Policy | 10. TMDL or Permit in lieu of TMDL |
| 5. Ammonia Policy | 11. WET Test Policy |
| 6. Dissolved Oxygen Policy | |

OUTFALL #001 – DERIVATION AND DISCUSSION OF LIMITS:

- **Flow.** In accordance with [40 CFR Part 122.44(i)(1)(ii)] the volume of effluent discharged from each outfall is needed to assure compliance with permitted effluent limitations. If the permittee is unable to obtain effluent flow, then it is the responsibility of the permittee to inform the department, which may require the submittal of an operating permit modification.
- **Biochemical Oxygen Demand (BOD₅).** Effluent limitations have been retained from previous state operating permit, please see the **APPLICABLE DESIGNATION OF WATERS OF THE STATE** sub-section of the **Receiving Stream Information.**
- **Total Suspended Solids (TSS).** Effluent limitations have been retained from previous state operating permit, please see the **APPLICABLE DESIGNATION OF WATERS OF THE STATE** sub-section of the **Receiving Stream Information.**
- **pH.** Effluent limitations have been retained from previous state operating permit, please see the **APPLICABLE DESIGNATION OF WATERS OF THE STATE** sub-section of the **Receiving Stream Information.**
- **Total Ammonia Nitrogen.** Monitoring requirement only to determine reasonable potential to cause an excursion in water quality criteria.
- **Escherichia coli (E. coli).** Discharges to losing streams shall not exceed 126 per 100 ml as a Daily Maximum and Monthly Average at any time, as per 10 CSR 20-7.031(4)(C).
- **Nitrate + Nitrite.** Monitoring requirement only to determine reasonable potential. The receiving stream is a losing stream and has direct hydraulic connection to ground water. Nitrate has a drinking water limit of 10 mg/L.

- **Total Residual Chlorine (TRC).** Warm-water Protection of Aquatic Life CCC = 10 µg/L, CMC = 19 µg/L [10 CSR 20-7.031, Table A]. Background TRC = 0.0 µg/L.

Chronic WLA: $C_e = ((0.005 + 0.0)10 - (0.0 * 0.0)) / 0.005$
 $C_e = 10 \text{ µg/L}$

Acute WLA: $C_e = ((0.005 + 0.0)19 - (0.0 * 0.0)) / 0.005$
 $C_e = 19 \text{ µg/L}$

$LTA_c = 10 (0.527) = 5.3 \text{ µg/L}$ [CV = 0.6, 99th Percentile]
 $LTA_a = 19 (0.321) = 6.1 \text{ µg/L}$ [CV = 0.6, 99th Percentile]

Use most protective number of LTA_c or LTA_a .

$MDL = 5.3 (3.11) = 16.5 \text{ µg/L}$ [CV = 0.6, 99th Percentile]
 $AML = 5.3 (1.55) = 8.2 \text{ µg/L}$ [CV = 0.6, 95th Percentile, n = 4]

Total Residual Chlorine effluent limits of 0.017 mg/L daily maximum, 0.008 mg/L monthly average are recommended if chlorine is used as a disinfectant. Standard compliance language for TRC, including the minimum level (ML), should be included in the permit.

- **Minimum Effluent Sampling and Reporting Frequency Requirements**

PARAMETER	SAMPLING FREQUENCY	REPORTING FREQUENCY
FLOW	ONCE/MONTH	ONCE/QUARTER
BOD ₅	ONCE/QUARTER	ONCE/QUARTER
TSS	ONCE/QUARTER	ONCE/QUARTER
PH	ONCE/QUARTER	ONCE/QUARTER
ESCHERICHIA COLI	ONCE/QUARTER	ONCE/QUARTER
CHLORINE, TOTAL RESIDUAL	ONCE/QUARTER	ONCE/QUARTER
AMMONIA AS N (MAY 1 – OCT 31)	ONCE/QUARTER	ONCE/QUARTER
AMMONIA AS N (NOV 1 – APR 30)	ONCE/QUARTER	ONCE/QUARTER
NITRATE + NITRITE	ONCE/QUARTER	ONCE/QUARTER

Sample once per quarter:

Sample discharge at least once for the months of:	Report is due:
January, February, March (1st Quarter)	April 28
April, May, June (2nd Quarter)	July 28
July, August, September (3rd Quarter)	October 28
October, November, December (4th Quarter)	January 28

Outfall #003 – Non-contact cooling water

EFFLUENT LIMITATIONS TABLE:

PARAMETER	UNIT	BASIS FOR LIMITS	DAILY MAXIMUM	WEEKLY AVERAGE	MONTHLY AVERAGE	MODIFIED	PREVIOUS PERMIT LIMITATIONS
FLOW	GPD	1	*		*	No	*/*
pH	SU	1	6.5-9.0		6.5-9.0	YES	6-9
AMMONIA AS N	MG/L	2/3/5	*		*	YES	***
CHLORINE, TOTAL RESIDUAL	MG/L	1/2	*		*	YES	****
MONITORING FREQUENCY	Please see Minimum Sampling and Reporting Frequency Requirements in the Derivation and Discussion Section below.						

* - Monitoring requirement only

** - # of colonies/100mL; the Monthly Average for Fecal Coliform is a geometric mean.

*** - Parameter not previously established in previous state operating permit.

N/A – Not applicable

Basis for Limitations Codes:

- | | |
|--|------------------------------------|
| 7. State or Federal Regulation/Law | 7. Antidegradation Policy |
| 8. Water Quality Standard (includes RPA) | 8. Water Quality Model |
| 9. Water Quality Based Effluent Limits | 9. Best Professional Judgment |
| 10. Lagoon Policy | 10. TMDL or Permit in lieu of TMDL |
| 11. Ammonia Policy | 11. WET Test Policy |
| 12. Dissolved Oxygen Policy | |

OUTFALL #001 – DERIVATION AND DISCUSSION OF LIMITS:

- **Flow.** In accordance with [40 CFR Part 122.44(i)(1)(ii)] the volume of effluent discharged from each outfall is needed to assure compliance with permitted effluent limitations. If the permittee is unable to obtain effluent flow, then it is the responsibility of the permittee to inform the department, which may require the submittal of an operating permit modification.
- **pH.** Effluent limitations have been retained from previous state operating permit, please see the **APPLICABLE DESIGNATION OF WATERS OF THE STATE** sub-section of the **Receiving Stream Information.**
- **Total Ammonia Nitrogen.** Monitoring requirement only to determine reasonable potential to cause an excursion in water quality criteria.
- **Total Residual Chlorine (TRC).** Monitoring requirement only to determine reasonable potential to cause an excursion in water quality criteria.
- **Minimum Effluent Sampling and Reporting Frequency Requirements**

PARAMETER	SAMPLING FREQUENCY	REPORTING FREQUENCY
FLOW	ONCE/MONTH	ONCE/QUARTER
pH	ONCE/QUARTER	ONCE/QUARTER
CHLORINE, TOTAL RESIDUAL	ONCE/QUARTER	ONCE/QUARTER
AMMONIA AS N	ONCE/QUARTER	ONCE/QUARTER

Sample once per quarter:

Sample discharge at least once for the months of:	Report is due:
January, February, March (1st Quarter)	April 28
April, May, June (2nd Quarter)	July 28
July, August, September (3rd Quarter)	October 28
October, November, December (4th Quarter)	January 28

Outfall #004 – Pressure washing and Coil Testing

EFFLUENT LIMITATIONS TABLE:

PARAMETER	UNIT	BASIS FOR LIMITS	DAILY MAXIMUM	WEEKLY AVERAGE	MONTHLY AVERAGE	MODIFIED	PREVIOUS PERMIT LIMITATIONS
FLOW	GPD	1	*		*	No	*/*
COD	MG/L	9	*		*	No	*/*
SS	MG/L	9	1.0		0.5	No	1.0/0.5
TSS	MG/L	1	60		31	YES	**
pH	SU	1	6.5-9.0		6.5-9.0	YES	6-9
TEMPERATURE	°F	1	95		*	No	95/*
AMMONIA AS N (MAY 1 – OCT 31)	MG/L	2/3/5	12.0		*	YES	*/*
AMMONIA AS N (NOV 1 – APR 30)	MG/L	2/3/5	12.0		*	YES	*/*
PHOSPHORUS, TOTAL	MG/L	1/2	*		*	No	*/*
OIL & GREASE (MG/L)	MG/L	1	15		10	No	15/10
ALUMINUM, , TOTAL RECOVERABLE	µg/L	2/3	750		326	YES	*/*
BORON, TOTAL RECOVERABLE	µg/L	2/3	3,511		1,151	YES	*/*
CHROMIUM (VI), DISSOLVED	µg/L	2/3	*		*	YES	*/*
COPPER, TOTAL RECOVERABLE	µg/L	2/3	20.5		7.0	YES	*/*
IRON, TOTAL RECOVERABLE	µg/L	2/3	551		209	YES	*/*
ZINC, TOTAL RECOVERABLE	µg/L	2/3	169		55	YES	*/*
LEAD, TOTAL RECOVERABLE	µg/L	2/3	*		*	YES	**
NICKEL, TOTAL RECOVERABLE	µg/L	2/3	*		*	YES	**
SILVER, TOTAL RECOVERABLE	µg/L	2/3	*		*	YES	**
CYANIDE, AMENABLE TO CHLORINATION	µg/L	2/3	*		*	YES	**
WHOLE EFFLUENT TOXICITY (WET) TEST	% Survival	11	Please see WET Test in the Derivation and Discussion Section below.				
MONITORING FREQUENCY	Please see Minimum Sampling and Reporting Frequency Requirements in the Derivation and Discussion Section below.						

* - Monitoring requirement only.

** - Parameter not previously established in previous state operating permit.

Basis for Limitations Codes:

- | | |
|--|------------------------------------|
| 1. State or Federal Regulation/Law | 7. Antidegradation Policy |
| 2. Water Quality Standard (includes RPA) | 8. Water Quality Model |
| 3. Water Quality Based Effluent Limits | 9. Best Professional Judgment |
| 4. Lagoon Policy | 10. TMDL or Permit in lieu of TMDL |
| 5. Ammonia Policy | 11. WET Test Policy |
| 6. Dissolved Oxygen Policy | 12. Antidegradation Review |

OUTFALL #004 – DERIVATION AND DISCUSSION OF LIMITS:

- **Flow.** In accordance with [40 CFR Part 122.44(i)(1)(ii)] the volume of effluent discharged from each outfall is needed to assure compliance with permitted effluent limitations. If the permittee is unable to obtain effluent flow, then it is the responsibility of the permittee to inform the department, which may require the submittal of an operating permit modification.
- **Chemical Oxygen Demand (COD).** Effluent limitations have been retained from previous state operating permit.
- **Total Suspended Solids (TSS).** 60/31 mg/L of TSS is considered the best practicable control technology currently in accordance with 40 CFR Part 433.13.
- **pH.** Effluent limitations have been retained from previous state operating permit, please see the **APPLICABLE DESIGNATION OF WATERS OF THE STATE** sub-section of the **Receiving Stream Information.**
- **Temperature.** Effluent limitations have been retained from previous state operating permit, please see 10 CSR Chapter 7, Table A for more information.
- **Total Ammonia Nitrogen.** Early Life Stages Present Total Ammonia Nitrogen criteria apply [10 CSR 20-7.031(4)(B)7.C. & Table B3] default pH 7.8 SU No mixing considerations allowed; therefore, WLA = appropriate criterion. Discharge Specific CV = 0.864 per the RPA in Appendix C. Intermittent discharge, only acute criteria applies

Season	Temp (°C)	pH (SU)	Total Ammonia Nitrogen CCC (mg/L)	Total Ammonia Nitrogen CMC (mg/L)
Summer	26	7.8	1.5	12.1
Winter	6	7.8	3.1	12.1

Summer: May 1 – October 31

Acute WLA: $C_e = 12.1 \text{ mg/L}$

$LTA_a = 12.1 \text{ mg/L} (0.233) = 2.8 \text{ mg/L}$ [CV = 0.864, 99th Percentile]

MDL = 2.8 mg/L (4.30) = 12.0 mg/L [CV = 0.864, 99th Percentile]

Winter: November 1 – April 30

Acute WLA: $C_e = 12.1 \text{ mg/L}$

$LTA_a = 12.1 \text{ mg/L} (0.233) = 2.8 \text{ mg/L}$ [CV = 0.864, 99th Percentile]

Use most protective number of LTA_c or LTA_a .

MDL = 2.8 mg/L (4.30) = 12.0 mg/L [CV = 0.864, 99th Percentile]

- **Phosphorous, Total.** Monitoring Only, Effluent limitations have been retained from previous state operating permit.
- **Oil & Grease.** Conventional pollutant, effluent limitation for protection of aquatic life; 10 mg/L monthly average, 15 mg/L daily maximum.

Metals

Effluent limitations for total recoverable metals were developed using methods and procedures outlined in EPA/505/2-90-001 and “The Metals Translator: Guidance For Calculating A Total Recoverable Permit Limit From A Dissolved Criterion” (EPA 823-B-96-007). General warm-water fishery criteria apply and water hardness = 162 mg/L.

Due to the absence of contemporaneous effluent and instream data for total recoverable metals, dissolved metals, hardness, and total suspended solids with which to calculate metals translators, partitioning between the dissolved and absorbed phases was assumed to be minimal (Section 5.7.3, EPA/505/2-90-001). Freshwater criteria conversion factors for dissolved metals were used as the metals translator as recommended in guidance (Section 1.3, 1.5.3, and Table 1, EPA 823-B-96-007). If concurrent site-specific data for total recoverable metals, dissolved metals, hardness, and total suspended solids are provided to the department, partitioning evaluations may be considered and site-specific translators developed.

METAL	CONVERSION FACTORS	
	ACUTE	CHRONIC
Aluminum	1.0	NA
Barium	NA	1.0
Boron	NA	1.0
Chromium III	0.316	0.860
Chromium VI	0.982	0.962
Copper	0.960	0.960
Iron	NA	1.0
Zinc	0.978	0.986
Lead	0.720	0.720

NA – Not applicable

Conversion factors for Cd and Lead are hardness dependent. Values calculated using equation found in Section 1.3 of EPA 823-B-96-007 and hardness = 162 mg/L.

- **Aluminum, Total Recoverable.** Protection of Aquatic Life, Acute Criteria = 750 µg/L. No mixing considerations allowed; therefore, WLA = appropriate criterion. Discharge Specific CV = 0.805 per Appendix C

$$\text{Acute} = 750/1.0 = 750 \text{ } \mu\text{g/L}$$

$$\text{Acute WLA: } C_e = 750 \text{ } \mu\text{g/L}$$

$$\text{LTA}_a = 750 (0.248) = 186 \text{ } \mu\text{g/L} \quad [\text{CV} = 0.805, 99^{\text{th}} \text{ Percentile}]$$

$$\text{MDL} = 186 (4.03) = 750 \text{ } \mu\text{g/L} \quad [\text{CV} = 0.805, 99^{\text{th}} \text{ Percentile}]$$

$$\text{AML} = 186 (1.75) = 326 \text{ } \mu\text{g/L} \quad [\text{CV} = 0.805, 95^{\text{th}} \text{ Percentile, } n = 4]$$

- **Boron, Total Recoverable.** Protection of Groundwater (Receiving Stream is Losing), Chronic Criteria = 2,000 µg/L. No mixing considerations allowed; therefore, WLA = appropriate criterion. Discharge Specific CV = 1.933 per Appendix C.

$$\text{Chronic} = 2,000/1.0 = 2,000 \text{ } \mu\text{g/L}$$

$$\text{Chronic WLA: } C_e = 2,000 \text{ } \mu\text{g/L}$$

$$\text{LTA}_c = 2,000 (0.210) = 420 \text{ } \mu\text{g/L} \quad [\text{CV} = 1.933, 99^{\text{th}} \text{ Percentile}]$$

$$\text{MDL} = 420 (8.36) = 3511 \text{ } \mu\text{g/L} \quad [\text{CV} = 1.933, 99^{\text{th}} \text{ Percentile}]$$

$$\text{AML} = 420 (2.74) = 1151 \text{ } \mu\text{g/L} \quad [\text{CV} = 1.933, 95^{\text{th}} \text{ Percentile, } n = 4]$$

- **Copper, Total Recoverable.** Protection of Aquatic Life Chronic Criteria = 13 µg/L, Acute Criteria = 20 µg/L. No mixing considerations allowed; therefore, WLA = appropriate criterion. Discharge Specific CV = 1.609 per Appendix C

$$\text{Chronic} = 13/0.960 = 13.5 \text{ µg/L}$$

$$\text{Acute} = 20/0.960 = 20.8 \text{ µg/L}$$

$$\text{Chronic WLA: } C_e = 13.5 \text{ µg/L}$$

$$\text{Acute WLA: } C_e = 20.8 \text{ µg/L}$$

$$\text{LTA}_c = 13.5 (0.248) = 3.3 \text{ µg/L}$$

$$[\text{CV} = 1.609, 99^{\text{th}} \text{ Percentile}]$$

$$\text{LTA}_a = 20.8 (0.137) = 2.8 \text{ µg/L}$$

$$[\text{CV} = 1.609, 99^{\text{th}} \text{ Percentile}]$$

Use most protective number of **LTA_c** or **LTA_a**.

$$\text{MDL} = 2.8 (7.32) = 20.5 \text{ µg/L}$$

$$[\text{CV} = 1.609, 99^{\text{th}} \text{ Percentile}]$$

$$\text{AML} = 2.8 (2.49) = 7.0 \text{ µg/L}$$

$$[\text{CV} = 1.609, 95^{\text{th}} \text{ Percentile}, n = 4]$$

- **Iron, Total Recoverable.** Protection of Groundwater (Receiving Stream is Losing), Chronic Criteria = 300 µg/L. No mixing considerations allowed; therefore, WLA = appropriate criterion. Discharge Specific CV = 1.129 per Appendix C.

$$\text{Chronic} = 300/1.0 = 300 \text{ µg/L}$$

$$\text{Chronic WLA: } C_e = 300 \text{ µg/L}$$

$$\text{LTA}_c = 300 (0.338) = 101 \text{ µg/L}$$

$$[\text{CV} = 1.129, 99^{\text{th}} \text{ Percentile}]$$

$$\text{MDL} = 101 (5.46) = 551 \text{ µg/L}$$

$$[\text{CV} = 1.129, 99^{\text{th}} \text{ Percentile}]$$

$$\text{AML} = 101 (2.07) = 209 \text{ µg/L}$$

$$[\text{CV} = 1.129, 95^{\text{th}} \text{ Percentile}, n = 4]$$

- **Zinc, Total Recoverable.** Protection of Aquatic Life Chronic Criteria = 151 µg/L, Acute Criteria = 165 µg/L. No mixing considerations allowed; therefore, WLA = appropriate criterion. Discharge Specific CV = 2.036 per Appendix C.

$$\text{Chronic} = 165/0.986 = 167 \text{ µg/L}$$

$$\text{Acute} = 165/0.978 = 169 \text{ µg/L}$$

$$\text{Chronic WLA: } C_e = 167 \text{ µg/L}$$

$$\text{Acute WLA: } C_e = 169 \text{ µg/L}$$

$$\text{LTA}_c = 167 (0.201) = 33.6 \text{ µg/L}$$

$$[\text{CV} = 2.036, 99^{\text{th}} \text{ Percentile}]$$

$$\text{LTA}_a = 169 (0.116) = 19.6 \text{ µg/L}$$

$$[\text{CV} = 2.036, 99^{\text{th}} \text{ Percentile}]$$

Use most protective number of **LTA_c** or **LTA_a**.

$$\text{MDL} = 19.6 (8.65) = 169 \text{ µg/L}$$

$$[\text{CV} = 2.036, 99^{\text{th}} \text{ Percentile}]$$

$$\text{AML} = 19.6 (2.81) = 55 \text{ µg/L}$$

$$[\text{CV} = 2.036, 95^{\text{th}} \text{ Percentile}, n = 4]$$

- **Chromium (VI) Dissolved.** Monitoring only to determine if this facility has the potential to contribute to an excursion of water quality standards for Chromium (VI).
- **Lead, Total Recoverable.** Monitoring only to determine if this facility has the potential to contribute to an excursion of water quality standards for Lead.
- **Nickel, Total Recoverable.** Monitoring only to determine if this facility has the potential to contribute to an excursion of water quality standards for Nickel.
- **Silver, Total Recoverable.** Monitoring only to determine if this facility has the potential to contribute to an excursion of water quality standards for Silver.

- **WET Test.** WET Testing schedules and intervals are established in accordance with the department's Permit Manual; Section 5.2 *Effluent Limits / WET Testing for Compliance Bio-monitoring*. It is recommended that WET testing be conducted during the period of lowest stream flow.

☒ Acute

☒ No less than ONCE/YEAR

Acute and/or Chronic Allowable Effluent Concentrations (AECs) for facilities that discharge to unclassified, Class C, Class P (with default Mixing Considerations), or Lakes [10 CSR 20-7.031(4)(A)4.B.(IV)(b)] are 100%, 50%, 25%, 12.5%, & 6.25%.

Minimum Sampling and Reporting Frequency Requirements.

PARAMETER	SAMPLING FREQUENCY	REPORTING FREQUENCY
FLOW	ONCE/MONTH	ONCE/ QUARTER
COD	ONCE/QUARTER	ONCE/ QUARTER
TSS	ONCE/QUARTER	ONCE/ QUARTER
pH	ONCE/QUARTER	ONCE/ QUARTER
TEMPERATURE	ONCE/QUARTER	ONCE/ QUARTER
AMMONIA AS N (MAY 1 – OCT 31)	ONCE/QUARTER	ONCE/ QUARTER
AMMONIA AS N (NOV 1 – APR 30)	ONCE/QUARTER	ONCE/ QUARTER
PHOSPHORUS, TOTAL	ONCE/QUARTER	ONCE/ QUARTER
OIL & GREASE (MG/L)	ONCE/QUARTER	ONCE/ QUARTER
ALUMINUM, , TOTAL RECOVERABLE	ONCE/QUARTER	ONCE/ QUARTER
BORON, TOTAL RECOVERABLE	ONCE/QUARTER	ONCE/ QUARTER
CHROMIUM (VI), DISSOLVED	ONCE/QUARTER	ONCE/ QUARTER
COPPER, TOTAL RECOVERABLE	ONCE/QUARTER	ONCE/ QUARTER
IRON, TOTAL RECOVERABLE	ONCE/QUARTER	ONCE/ QUARTER
ZINC, TOTAL RECOVERABLE	ONCE/QUARTER	ONCE/ QUARTER
LEAD, TOTAL RECOVERABLE	ONCE/QUARTER	ONCE/ QUARTER
NICKEL, TOTAL RECOVERABLE	ONCE/QUARTER	ONCE/ QUARTER
SILVER, TOTAL RECOVERABLE	ONCE/QUARTER	ONCE/ QUARTER

Sample once per quarter:

Sample discharge at least once for the months of:	Report is due:
January, February, March (1st Quarter)	April 28
April, May, June (2nd Quarter)	July 28
July, August, September (3rd Quarter)	October 28
October, November, December (4th Quarter)	January 28

Part VI – Administrative Requirements

On the basis of preliminary staff review and the application of applicable standards and regulations, the Department, as administrative agent for the Missouri Clean Water Commission, proposes to issue a permit(s) subject to certain effluent limitations, schedules, and special conditions contained herein and within the operating permit. The proposed determinations are tentative pending public comment.

PUBLIC NOTICE:

The department shall give public notice that a draft permit has been prepared and its issuance is pending. Additionally, public notice will be issued if a public hearing is to be held because of a significant degree of interest in and water quality concerns related to a draft permit. No public notice is required when a request for a permit modification or termination is denied; however, the requester and permittee must be notified of the denial in writing.

The department must issue public notice of a pending operating permit or of a new or reissued statewide general permit. The public comment period is the length of time not less than 30 days following the date of the public notice which interested persons may submit written comments about the proposed permit.

For persons wanting to submit comments regarding this proposed operating permit, then please refer to the Public Notice page located at the front of this draft operating permit. The Public Notice page gives direction on how and where to submit appropriate comments.



The Public Notice period for this operating permit is tentatively schedule to begin on May 27, 2011 or is in process.

DATE OF FACT SHEET:

FIRST DRAFT - NOVEMBER 24, 2009.

SECOND DRAFT - APRIL 25, 2011.

COMPLETED BY:

STEVE LANG, P.E.
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Part VII – Appendices

APPENDIX # - CLASSIFICATION WORKSHEET:

ITEM	POINTS POSSIBLE	POINTS ASSIGNED
Maximum Population Equivalent (P.E.) served (Max 10 pts.)	1 pt./10,000 PE or major fraction thereof.	0
Maximum: 10 pt Design Flow (avg. day) or peak month; use greater (Max 10 pts.)	1 pt. / MGD or major fraction thereof.	0
EFFLUENT DISCHARGE RECEIVING WATER SENSITIVITY:		
Missouri or Mississippi River	0	
All other stream discharges except to losing streams and stream reaches supporting whole body contact	1	
Discharge to lake or reservoir outside of designated whole body contact recreational area	2	
Discharge to losing stream, or stream, lake or reservoir area supporting whole body contact recreation	3	3
PRELIMINARY TREATMENT - Headworks		
Screening and/or comminution	3	
Grit removal	3	
Plant pumping of main flow (lift station at the headworks)	3	
PRIMARY TREATMENT		
Primary clarifiers	5	
Combined sedimentation/digestion	5	
Chemical addition (except chlorine, enzymes)	4	
REQUIRED LABORATORY CONTROL – performed by plant personnel (highest level only)		
Lab work conducted outside of plant	0	0
Push – button or visual methods for simple test such as pH, Settleable solids	3	
Additional procedures such as DO, COD, BOD, titrations, solids, volatile content	5	
More advanced determinations such as BOD seeding procedures, fecal coliform, nutrients, total oils, phenols, etc.	7	
Highly sophisticated instrumentation, such as atomic absorption and gas chromatograph	10	
ALTERNATIVE FATE OF EFFLUENT		
Direct reuse or recycle of effluent	6	
Land Disposal – low rate	3	
High rate	5	
Overland flow	4	
Total from page ONE (1)	----	3

APPENDIX # - CLASSIFICATION WORKSHEET (CONTINUED):

ITEM	POINTS POSSIBLE	POINTS ASSIGNED
VARIATION IN RAW WASTE (highest level only) (DMR exceedances and Design Flow exceedances)		
Variation do not exceed those normally or typically expected	0	0
Recurring deviations or excessive variations of 100 to 200 % in strength and/or flow	2	
Recurring deviations or excessive variations of more than 200 % in strength and/or flow	4	
Raw wastes subject to toxic waste discharge	6	
SECONDARY TREATMENT		
Trickling filter and other fixed film media with secondary clarifiers	10	
Activated sludge with secondary clarifiers (including extended aeration and oxidation ditches)	15	15
Stabilization ponds without aeration	5	
Aerated lagoon	8	
Advanced Waste Treatment Polishing Pond	2	
Chemical/physical – without secondary	15	
Chemical/physical – following secondary (sock filters)	10	10
Biological or chemical/biological	12	
Carbon regeneration	4	
DISINFECTION		
Chlorination or comparable	5	5
Dechlorination	2	
On-site generation of disinfectant (except UV light)	5	
UV light	4	
SOLIDS HANDLING - SLUDGE		
Solids Handling Thickening	5	
Anaerobic digestion	10	
Aerobic digestion	6	6
Evaporative sludge drying	2	
Mechanical dewatering	8	
Solids reduction (incineration, wet oxidation)	12	
Land application	6	
Total from page TWO (2)	----	36
Total from page ONE (1)	---	3
Grand Total	---	39

- ☐ A : 71 points or greater
- ☐ B: 51 points - 70 points
- ☒ C: 26 points - 50 points
- ☐ D: 0 points - 25 points

APPENDIX B – OUTFALL LOCATION/DESCRIPTION:

Outfalls #002, #005, #006, #007, #008 and instream monitoring locations DS #1 and DS #2 are historical outfalls no longer covered by this permit.

Outfall #001 – Domestic - SIC #4952 - **Certified “C” Operator Required**

Extended aeration/sock filters/chlorination/aerated sludge holding tanks/sludge is disposed by contract hauler

Legal Description: SE ¼, NE ¼, NE ¼, Sec. 22 T43N, R4E, Jefferson County

UTM: X = 713630, Y = 4259124

Design population equivalent is 59

Design flow is 3,000 gallons per day.

Actual flow is 2,400 gallons per day.

Design sludge production is 1.06 dry tons/year.

Receiving Stream: Antire Creek (U) (Losing)

First Classified Stream and ID: Antire Creek (P) (02188)

USGS Basin & Sub-watershed No.: (07140102 – 180001)

Outfall #002

Legal Description: NW ¼, NW ¼, Sec. 23 T43N, R4E, Jefferson County

UTM: X = 713935, Y = 4259243

Design flow is 600 gallons per day.

Receiving Stream: Antire Creek (U) (Losing)

First Classified Stream and ID: Antire Creek (P) (02188)

USGS Basin & Sub-watershed No.: (07140102 – 180001)

Outfall #003

Legal Description: NW ¼, NW ¼, Sec. 23 T43N, R4E, Jefferson County

UTM: X = 713947, Y = 4259253

Design flow is 11,000 gallons per day.

Receiving Stream: Antire Creek (U) (Losing)

First Classified Stream and ID: Antire Creek (P) (02188)

USGS Basin & Sub-watershed No.: (07140102 – 180001)

Outfall #004

Legal Description: NW ¼, NW ¼, Sec. 23 T43N, R4E, Jefferson County

UTM: X = 713835, Y = 4259191

Design flow is 9,500 gallons per day.

Receiving Stream: Antire Creek (U) (Losing)

First Classified Stream and ID: Antire Creek (P) (02188)

USGS Basin & Sub-watershed No.: (07140102 – 180001)

Outfall #005

Legal Description: NW ¼, NW ¼, Sec. 23 T43N, R4E, Jefferson County

UTM: X = 713882, Y = 4259128

Design flow is 300 gallons per day.

Receiving Stream: Antire Creek (U) (Losing)

First Classified Stream and ID: Antire Creek (P) (02188)

USGS Basin & Sub-watershed No.: (07140102 – 180001)

Outfall #007

Legal Description: NW ¼, NW ¼, Sec. 23 T43N, R4E, Jefferson County

UTM: X = 713794, Y = 4259171

Receiving Stream: Antire Creek (U) (Losing)

First Classified Stream and ID: Antire Creek (P) (02188)

USGS Basin & Sub-watershed No.: (07140102 – 180001)

Outfall #008

Legal Description: NW ¼, NW ¼, Sec. 23 T43N, R4E, Jefferson County

UTM: X = 713902, Y = 4259230

Receiving Stream: Antire Creek (U) (Losing)

First Classified Stream and ID: Antire Creek (P) (02188)

USGS Basin & Sub-watershed No.: (07140102 – 180001)

APPENDIX C – RPA RESULTS:

CONSTITUENT	CMC*	RWC ACUTE*	CCC*	RWC CHRONIC*	REASONABLE POTENTIAL	# OF SAMPLES**	CV***
ALUMINUM, TOTAL RECOVERABLE							
OUTFALL #002		3,300			Yes	19	0.915
OUTFALL #003	750	48,240	NA	NA	Yes	19	1.915
OUTFALL #004		3,190			Yes	20	0.805
OUTFALL #005		3,169			Yes	14	1.031
BARIUM, TOTAL RECOVERABLE							
OUTFALL #002				2,332	Yes	18	1.213
OUTFALL #003	NA	NA	2000	1,008	No	14	1.074
OUTFALL #004				506	No	19	1.294
OUTFALL #005				1,898	No	12	1.141
BORON, TOTAL RECOVERABLE							
OUTFALL #002				28,200	Yes	19	0.755
OUTFALL #003	NA	NA	2000	19,140	Yes	15	2.150
OUTFALL #004				160,800	Yes	19	1.933
OUTFALL #005				39,600	Yes	19	0.929
CHROMIUM (III), TOTAL RECOVERABLE							
OUTFALL #002				103	Yes	16	0.622
OUTFALL #003	NA	NA	103****	70	No	12	0.594
OUTFALL #004				97	No	13	0.611
OUTFALL #005				262	Yes	14	1.034
CHROMIUM (VI), TOTAL RECOVERABLE							
OUTFALL #002				103	Yes	16	0.622
OUTFALL #003	NA	NA	10	70	Yes	12	0.594
OUTFALL #004				97	Yes	13	0.611
OUTFALL #005				262	Yes	14	1.034
COPPER, TOTAL RECOVERABLE							
OUTFALL #002				8,320	Yes	19	1.770
OUTFALL #003	NA	NA	10****	912	Yes	12	3.110
OUTFALL #004				29,070	Yes	19	1.609
OUTFALL #005				3,551	Yes	19	1.530
IRON, TOTAL RECOVERABLE							
OUTFALL #002				44,000	Yes	19	1.118
OUTFALL #003	NA	NA	300	52,200	Yes	19	1.744
OUTFALL #004				18,400	Yes	19	1.129
OUTFALL #005				127,090	Yes	19	2.538
ZINC, TOTAL RECOVERABLE							
OUTFALL #002				100,700	Yes	19	1.547
OUTFALL #003	NA	NA	151	46,860	Yes	19	2.031
OUTFALL #004				44,020	Yes	19	2.036
OUTFALL #005				3,467	Yes	15	1.321
AMMONIA AS N							
OUTFALL #002				1.8	Yes	18	0.593
OUTFALL #003	NA	NA	1.5	8.8	Yes	16	1.989
OUTFALL #004				2.5	Yes	14	0.864
OUTFALL #005				7.2	Yes	16	0.894

N/A – Not Applicable

* - Units are (µg/L) unless otherwise noted.

** - If the number of samples is greater than 10, then the CV value must be used in the WQBEL for the applicable constituent.

*** - Coefficient of Variation (CV) is calculated by dividing the Standard Deviation of the sample set by the Mean of the same sample set.

**** - Hardness dependant. Default hardness is 162 mg/L used due to no site specific data

Reasonable Potential Analysis is conducted as per (TSD, EPA/505/2-90-001, Section 3.3.2).

A more detailed version including calculations of this RPA is available upon request.